Medical Library

MAR 27 1944

The Physiotherapy Review

Volume 24 Number 2

Table of Contents

	Page
Physical Therapy in Compression Fractures of the Spine (Without Cord Injury)—M. E. Pusitz, Major, M.C., and I. E. Thompson, 1st Lt., P.T.A.	51
Physical Recreation and the Schizophrenic—Grace A. Black	57
War and Post-War Rehabilitation of Handicapped Persons—Michael J. Shortley	61
Schools Approved for Training Physical Therapy Technicians	64
Editorials and Conference Program	66
Index to Current Literature	71
Abstracts—John S. Coulter, M.D.	73
Book Reviews	83
Chapter Directory	88

A. P. A. Conference — New York City — May 17-21, 1944

Published Bimonthly By

THE AMERICAN PHYSIOTHERAPY ASSOCIATION

MARCH-APRIL 1944

The American Physiotherapy Association

Executive Committee

PRESIDENT

CATHERINE WORTHINGHAM ..... Stanford University, Calif.

VICE-PRESIDENTS

DOROTHY YOUNG ..... 480 Menlo Oaks Dr., Menlo Park, Calif.
BETTY A. RICE ..... 5169 Claremont, Oakland, Calif.

SECRETARY

EVELYN ANDERSON ..... 5 Reo Way, San Francisco, Calif.

TREASURER

ALICE V. GANTZER ..... 851 California Ave., Apt. 43, San Francisco, Calif.

DIRECTORS

S. PAUL CAMPBELL ..... 2523 Mansfield Ave., Drexel Hill, Penna.
CONSTANCE K. GREENE ..... 105 South Huntington Ave., Boston, Mass.
HELEN L. KAISER ..... Division of P.T., Duke University, Durham, N. C.
SARA KOLLMAN ..... 500 Harvard St., S. E., Minneapolis, Minn.
EDITH L. NYMAN ..... Johns Hopkins Hospital, Baltimore, Md.
ALICE LOU PLASTRIDGE ..... Warm Springs Foundation, Warm Springs, Ga.

Standing Committees

COMMITTEE ON EDUCATION

MARY NESBITT, *Chairman* .....
Massachusetts General Hospital, Boston, Mass.

Advisory Board, American Registry of Physical Therapy Technicians

GERTRUDE BEARD .....
303 E. Chicago Ave., Chicago 11, Ill.

American Association for Health, Physical Education and Recreation

ELLEN KELLY .....
Univ. of Minn., Minneapolis, Minn.

National Organization for Public Health Nursing

MARY NESBITT .....
Mass. General Hospital, Boston, Mass.

COMMITTEE ON LEGISLATION

ADELAIDE L. MCGARRETT .....
James W. Riley Hospital, Indianapolis 5, Ind.

COMMITTEE ON MEMBERSHIP

BETTY A. RICE, 5160 Claremont, Oakland, Calif.

COMMITTEE ON RELATIONS

HAZEL FURSCOTT, *Chairman* .....
219 Pittsburgh Bldg., San Francisco, Calif.

Chapter Relations

MRS. MARGERY L. WAGNER .....
Univ. of Calif. Hospital, San Francisco, Calif.

Exhibits

DOROTHY DEAN .....
303 E. Chicago Ave., Chicago 11, Ill.

Advisory Board, "The Crippled Child" Magazine

EMMY KYLIE, 1708 East 44th St., Ashtabula, Ohio

Advisory Committee on Services for Crippled Children

LUCY BLAIR ..... 1652 Monroe St., Madison, Wisc.

Advisory Council

FRANCES BAKER, M.D. .....
Univ. of Calif. Hospital, San Francisco, Calif.
FREDERIC C. BOST, M.D. .....
384 Post St., San Francisco, Calif.
JOHN S. COULTER, M.D. .....
303 E. Chicago Ave., Chicago 11, Ill.
WILLIAM H. NORTHWAY, M.D. .....
Stanford Univ. Hospital, San Francisco, Calif.
RAY LYMAN WILBUR, M.D. .....
Stanford University, Calif.

Executive and Editorial Office, 720 North Michigan Ave., Room 1100, Chicago 11, Ill.

Membership in The American Physiotherapy Association is $5.00 a year, including a subscription to THE PHYSIOTHERAPY REVIEW. Subscription for nonmembers to THE PHYSIOTHERAPY REVIEW, $3.50 a year; $3.80 in Canada and foreign countries. Single copies 35 cents to members; 50 cents to nonmembers. Entered as second class matter February 18, 1944, at the post office at Chicago, Ill., under the Act of August 24, 1912.

The statements in the manuscripts published in THE PHYSIOTHERAPY REVIEW are made solely on the responsibility of the author. The American Physiotherapy Association does not assume any responsibility for statements contained therein. Manuscripts accepted for publication in THE PHYSIOTHERAPY REVIEW are for exclusive publication and may not be published elsewhere.

The Physiotherapy Review

Published Bimonthly by The American Physiotherapy Association

Volume 24 **MARCH-APRIL** **Numbr 2**

Physical Therapy in Compression Fractures of the Spine*

(Without Cord Injury)

M. E. Pusitz, Major, M.C., and**
I. E. Thompson, 1st Lt., P.T.A.***

The older literature was pessimistic regarding compression fracture of the spine. It was realized by the early investigators that few returned to heavy duty. With the development of new technic, reduction of the compression fracture could be obtained and better results were secured. Now it is realized that under proper treatment seventy per cent of the cases, uncomplicated by cord injury, can be returned to their regular work provided there is complete reduction of the fracture, immobilization and proper fixation for a sufficient period of time, and a concomitant program of muscle education from the beginning.

Proper treatment requires excellent teamwork from the medical officer, the nurses, ward attendants, and the physical therapist. In our unit, the physical therapist is held responsible for the continued muscle education from the onset of treatment. In this way there is organized interrelationship of the various modalities used in the handling of the case.

Prognosis depends upon three factors, namely:

1. Completeness of reduction.
2. Sufficient fixation.
3. Muscle education (so-called functional treatment).

The reduction of the fracture should be performed immediately unless contraindicated by shock. The earlier the reduction is performed, the more complete it will be and the more easily will it be carried out. The longer the delay, the less likely there will be complete reduction. Moreover, continued muscle spasm creates situations favorable for localized fibrositic deposits and adhesions in and between muscle structures, ligamentous planes, and joint structures. However, if complete reduction cannot be obtained, one should continue to follow the rest of the routine because these other factors still can improve the situation.

Complete fixation is best afforded by the hyperextension cast. This will be required for at least three to six months. Not only is there this immobilization, but the patient is in a hyperextended position. It is imperative therefore that all measures be taken to eliminate the possibility of atrophic degeneration of muscle through disuse, stiffness of muscle due to formation of adhesions amongst the muscle planes, and capsular shrinkage or adhesions. For the elimination of these undesirable items, the so-called functional method is used, advocated by Bohler. By this is meant the complete, uninterrupted fixation of the fracture in a position of reduction, with simultaneous movements of as many joints and muscles as possible even with the fixation ap-

*Surgical Service, Hammond General Hospital, Modesto, California.

**Chief, Orthopedic Section; Chief, Physical Therapy Section.

***Head Physical Therapy Aide, Physical Therapy Section.

Fig. 1. Patient in hyperextension body cast.

paratus. This lessens or eliminates the above pathological items and prevents a "rusty" neuromuscular mechanism, but also has an important psychological effect upon a patient who knows that his back has been broken.

After reduction and fixation have been completed, muscle education is started while the patient is in bed. Movements will be controlled by the physical therapist. Certainly, the movements of the head, neck, shoulders, elbows, wrists, fingers, feet, knees and hips all can be started as soon as the patient has recovered from his operation—usually in twenty-four to forty-eight hours. In addition to this, other exercises may be added to activate the extensor muscles of the spine as well as the abdominal muscles.

At the end of about one month, the patient will be gotten out of bed in the so-called ambulant treatment. The length of time that the patient is out of bed gradually is increased so that by the end of six to eight weeks the patient can be up and around as much as he desires. All during this time the program of muscle education is continued so as to include the complete routine which subsequently will be appended.

Fig. 2. Hyperextension exercises in cast.

A word of warning must be issued, however, so that the physical therapist may be on her guard. Although the ambulant treatment with continued muscle education gives the best results, there are certain cases not suited for this type of treatment. Too early assumption of the ambulant method may give rise to trouble. Fractures in the convexity of the spine are most suited for this type of treatment since the hyperextension position can be obtained easily so as to relieve the pressure on the involved segments of the vertebral body. This convexity extends up to about the tenth dorsal vertebra. Above this level there is a concavity of the spine so that even the hyperextended position does not eliminate pressure on the involved portion of the vertebra. Pain in these cases may continue even though their ultimate prognosis is better than fractures lower down. If the vertebra has been compressed laterally, it is not a suitable case for ambulant treatment. The same is true of any crushing of the posterior portion of the body. Obese individuals are very difficult to fit with a cast. In all of these cases, continuation of the ambulant treatment may result in continued pain, muscle spasm and stiffness. It should be a rule that all cases who complain of continuing pain after muscle education should be reported to the medical officer in charge so that he may detect those cases which are unsuitable for the ambulant type of treatment. The physical therapist should make it a point to know the type of fracture present, the level of the fracture, the completeness of the reduction, and what constitutes a properly and well-applied body cast. In any event, care should be taken that in the initial stages of the ambulant treatment frequent x-ray check-up is performed.

Again it is repeated that the ambulant method of treatment is the method of choice, but in

Fig. 3. Hyperextension of hip—single leg raising.

Fig. 4. Hyperextension of hip—double leg raising.

Fig. 5. Flexion of body on legs.

Fig. 6. Advanced extension hips and spine.

Fig. 7. Flexion of leg at hip.

Fig. 8. Flexion of both legs at hip.

certain cases it is not feasible. In such instances the medical officer will institute an initial period of recumbent treatment. Even so, the program of muscle education continues, the patient performing those exercises which can be performed in bed and which will in no way produce flexion of the involved portion of the spine.

The following are the exercises suggested during the period of immobilization:

1. The patient from the beginning starts to move all of the joints which are not immobilized; for example, neck, shoulders, elbows, hands, fingers, hips, knees, feet. These exercises are started very gradually and increased progressively. Occupational therapy is very useful. The keynote is active muscle education.
2. Breathing exercises with abdominal retraction and contraction.
3. Lying on the face with the arms at the side, the head and shoulders are slowly raised from the bed. Muscle contraction should be slow—at the limit of contraction it should be held—and then the head and shoulders are lowered slowly to the table. There is gradual increase in the number of movements but never beyond ten or twelve times at any one session, and at the holding of the contraction, the count gradually should be raised until twenty or twenty-five is reached.
4. In a similar manner perform hyperextension of the hip—first the one, then the other, then both.
5. As the patient advances one can have the patient strapped to the table in a prone position, with the legs and thighs on the table, and with the body and hips projecting beyond the edge. Flexion of the body can be performed on the hips, the patient being permitted to lower himself gradually and then to extend at the hips or even hyperextend. These movements at first will have to be assisted.
6. Gluteal exercises—be sure that the buttocks are pressed together.
7. With the patient on his back, first raise one leg, then the other, then both.

It is very important that the patient be protected from fatigue. Spacing of exercise activity is very essential. In other words it is preferable

Fig. 9. Body cast removed.

for the patient to exercise many times during the day with short sessions rather than one prolonged period per day. Class work in groups is useful in large institutions where many similar cases are treated.

After three to six months of immobilization in the cast, as a general rule, the fracture will be healed. The cast then will be removed. If there has been complete reduction and a proper program of muscle education, no brace or corset will be required. It is true that where there has been quite a degree of hyperextension, there will be a moderate or severe lordosis. The patient may complain of pain over the sacroiliac or sacrolumbar joints or over the buttocks with concomitant spasm of the lumbar muscles. The problem, however, is not one of support, but rather one of mobilization of the spine so as to reproduce a normal, free range of motion which best can be attained by a further program of muscle education. In this, one may use as adjunct, physical therapy modalities of heat and massage. It is to be remembered, however, that function is the keynote and that the heat and massage are merely a preliminary for active muscle function.

The following are the exercises recommended for mobilization of the spine after the removal of the hyperextension cast:

1. Regular postural exercises.
2. With the patient sitting on a stool, with the hips widely abducted, knees flexed at a right angle, and the feet flat on the ground, the patient places his hands behind his buttocks and flexes the hips fully. He then flexes his body forward so that the head and shoulders ride downwards between his knees. Extension from this position takes place only in the spine, the hips being kept in full flexion. These exercises, therefore, give restricted flexion and extension in the lumbar and dorsal spine.
3. If there is tightness of muscles on one side, side bending rotation may be performed to the opposite direction.

There are certain situations in which the above program alone will be insufficient.

If there is a fixed lordosis as a result of poor muscle education during the period of immobilization, a support in the form of a brace may be necessary. If so, this is merely another adjunct and the triad of heat, massage, and muscle education still forms the nucleus of treatment. To continue with physical therapy alone in such cases will only unnecessarily prolong the convalescence. It can be accepted, therefore, as an axiom that if after physical therapy the patient complains of more pain than he had before, or if there is no progress at all after several weeks, in the presence of extreme lordosis, marked muscle spasm, and limitation of motion, the physical therapist should consult with the medical officer with reference to the application of a body brace. When brace support, physical therapy and muscle education are used, the lordosis diminishes and the brace must be adjusted constantly to fit or conform to the new curve present. Only exceptional cases will require manipulation

Fig. 10. Breathing exercises with abdominal retraction and contraction.

Fig. 11. Beginning position—hips abducted, body flexed on hips.

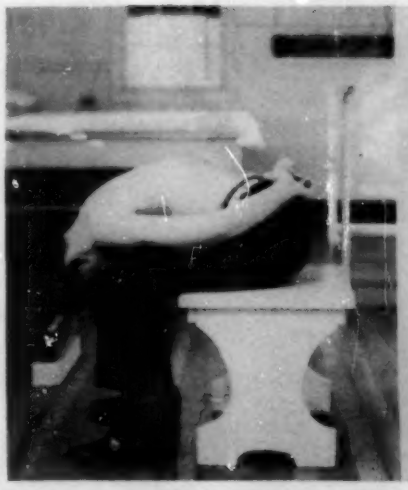

Fig. 12. Flexion of spine—head between knees.

Fig. 13. Extension of spine from flexed position.

of the spine, but it will be required in some cases. If such manipulation is performed, it is extremely important that from the very beginning no support be applied, but rather that the triad of heat, massage, and muscle education form the routine of treatment.

There is a group who will have a symptomatology regardless of excellent reductions where late changes occur. Such are: narrowing of the intervertebral disc due to damage at the time of injury with replacement fibrosis, herniation into the body of the vertebra (Schmorl's syndrome), and frequently the development of hypertrophic changes as evidenced by lipping. Calcification may occur in the ligaments between the vertebra with painful syndrome, but if this goes on to complete ankylosis, the pain disappears. Posterior herniation of the nucleus pulposus would give root compression syndrome.

These cases will be treated along orthopedic

Fig. 14. Lateral flexion of body—side bending with resistance.

Fig. 15. Forward flexion with resistance.

Fig. 16. Flexion and extension on rowing machine.

Fig. 17. Resulting good posture after routine of treatment for compression fracture, first lumbar vertebra.

lines by means of a support in the form of a brace or corset, with heat, massage, and muscle education; some will require operative treatment in the form of fusion. In all instances, however, it is important that the same routine of muscle education be followed as one of the important and essential elements in the routine of treatment.

There is one other group of cases which should be mentioned in this connection; namely, fracture of the transverse processes of the lumbar vertebra. Too frequently the uninitiated look upon this condition as trivial and not productive of prolonged disability. The reason for this is that they are looking at the x-ray and not the underlying pathology. Whether the fracture unites or not is of no moment. The concomitant injury of the soft tissues, however, is important. There is a tearing of muscles, fasciae, aponeuroses, and blood vessels, and nerves may be stretched or completely avulsed. There is hematoma and traumatic inflammation with ultimate formation of scar tissue; possible adhesions in and amongst muscle masses and possible scar compression of nerves.

A fracture of one transverse process is unimportant relatively, but a fracture of all five would give a pathological syndrome of some magnitude.

Too early use of these lacerated and torn tissues will aggravate the situation, while prolonged immobilization is harmful from both physical and psychological standpoints.

Proper treatment consists of simple immobilization by adhesive plaster strips where only one or two transverse processes are fractured and where clinical examination does not reveal widespread soft tissue pathology. Where more transverse processes are fractured, and where clinical examination reveals marked unilateral muscle spasm, tenderness, limitation of motion, etc., it will require the use of a plaster jacket from the lower pelvis to the nipple line.

In either event there is no necessity for keeping the patient in bed. Active exercises are instituted from the beginning along the same lines as we have discussed in fractures of the spine.

Adhesive plaster immobilization will be required only for a week or ten days, but plaster jacket immobilization may be required for four to six weeks. This always should be followed by a routine of muscle education.

In some instances there will be resultant pain on motion which stretches the quadratus lumborum—here manipulation under anesthesia to break up adhesions, followed by heat, massage, and muscle education is very efficacious.

It is stressed that the patient should be told that he has a muscle rupture rather than a fracture of his spine; that whether the transverse process unites or not is of no consequence; and that it is extremely important to start active muscle education right from the beginning to prevent dense massive adhesion formation which may be so severe as even to cause scoliosis.

Physical Recreation and the Schizophrenic

Grace A. Black

The importance of physical recreation in a psycho-physical therapy program cannot be stressed enough. Anyone working with mental patients is aware of the need for the direction of energy into those channels of expression which will reduce the tensions of that particular patient, at the same time providing outlets for this expression in ways which are socially acceptable. Physical recreation offers such a means of meeting the needs of the patient, mentally, physically and emotionally, in a program which is flexible to meet those individual needs. Furthermore, a physical recreation program is of such nature that it can be closely integrated with the total psycho-physical therapy program, supplementing and complementing the work of the other departments in their care of the patient.

Some of the benefits peculiar to physical recreation are as follows:

1. Especially appropriate in the problem of those physical conditions found rather consistently in schizophrenia.
2. Facilities for the gradation of activity to meet individual needs.
3. Particularly important as a major provision for the play element in the education and reeducation of the patient.
4. Possibilities for close cooperation with the other therapies.

In developing a concept of physical recreation it was advisable to restrict its application to a specific group in order to present a more concrete picture. This does not change the basic principles nor their application to the mentally ill in general. Because of the special need for physical recreation the hebephrenic and catatonic types of schizophrenia have been kept in mind. What is needed by these patients also is needed more or less by any mental patient, therefore the aims presented for a program of physical recreation for these patients would be applicable with modifications to any psychiatric patient.

In planning a well-rounded program of physical recreation it is necessary to fulfill the following aims. Because of the retardation of the patient it is necessary to provide mental and physical stimulation, especially in those activities which give the patient pleasing contact with reality. The provision of socially acceptable outlets for emotional drives is no less important, particularly for the aggression which is present and inevitably will appear. The lack of socialization of the schizophrenic is typical and can be helped in graded recreational activity. Opportunities for ego-satisfaction are important in treating the patient and the recreational program offers just such opportunities in its variety of activities. In fulfilling the above needs of the individual patient there will ensue a concommitant development of personality integration.

The above psychological needs are met at the same time that the physical needs peculiar to the schizophrenic are treated. There frequently are such conditions as overweight, underweight and postural defects present, as well as those physiological hazards common to the schizophrenic such as a predisposition to pulmonary disorders, vegetative nervous disorders and cardiovascular insufficiency.

Assuming a general program of physical recreation based on the foregoing principles and utilizing all available facilities, a consideration of that program in the light of the needs of the individual are essential for the success of that program as a whole. From the anamnesis and the records of the psychology department the intellectual development can be appraised, as well as whether there has been impairment of the intellect. When the latter condition exists the prognosis is not as favorable as when the intellectual faculties are unimpaired. There always is retrogression to lower levels of adjustment and the greater the retrogression the more difficult is the approach to the patient.

From the anamnesis information can be obtained relative to the patient's interest prior to admission as well as prior to the development of the acute illness. Information as to interests after admission are available from those members of the staff in contact with the patient—the nurses, the occupational therapists, the social service workers and the physicians. Personal contact

722 W. 168th St., New York 32, N. Y.

New York State Psychiatric Institute and Hospital, New York City.

with the patient always should be made by the therapist, at which time much can be learned as to the patient's interests or lack of interest in externals, accessibility and preoccupation.

Usually these patients exhibit a short attention-span due to preoccupation, anxiety or tension. At times the ruminative thinking is prominent in the clinical picture. For an effective recreational program these have to be considered in the choice of activities, length of class period and amount of supervision.

Consideration of the physical aspects is not only necessary but is of particular interest to the physical recreational therapist. According to postmortem research on those patients having schizophrenia, there is a consistent incidence of an aplastic circulatory system and of disorders of the glandular system.[1] The clinical picture of lowered vitality predisposing to tuberculosis and the low threshold of fatigability has a logical basis. It is important then to be aware of the need for those activities which will stimulate circulation and respiration, yet will be so planned that the benefits of those activities will not be cancelled by overfatigue.

Another phase of the program, of interest to the therapist and of importance to the individual patient, is the work with physical anomalies or deviations from the average. Frequent conditions in schizophrenia are overweight, underweight, underdeveloped musculature and poor coordination. Physical therapy does not necessarily cure these conditions but does have its place in alleviation in conjunction with the work of the physical therapy, dietary and medical departments. Overweight is common because of the tendency to voracious appetite—a physical expression of emotional need. These patients usually resist physical exertion in any form. Underweight occurs when there is passive or active resistance to the ingestion of food, as in the classical catatonic states or in the negativistic phases. Exercise does not 'put on weight' but it does stimulate appetite by improving circulation and general body tone.

Poor muscular development is a frequent, though not a constant, feature of the illness. Men frequently are well developed as an attempt to compensate for their inadequacies and to justify their 'masculinity' in the 'Atlas' physique. On the whole, the schizophrenic patient usually is not an athletic individual, particularly in sports and group activities.

Associated with the mental illness are postural changes which tend to be exaggerated with increased retardation and retrogression. As fear is the basis for anxiety and causes a state of tension in the body, any severe anxiety state will show tensions in the soma. In catatonia, which may be likened to a 'living death,' there is a complete withdrawal from the environment and a resistance to acknowledgment of any perception of it. There are varying degrees of this type of protective mechanism and it is important that any indication of response be utilized to encourage further responsiveness. Catatonic excitement frequently is sudden and violent.[2] Extremes of catatonic stupor and excitement are in the province of the medical department; however, moderately severe states frequently are approached in a physical recreation program with beneficial results.

From the preceding material the form of the program begins to appear. The individual patient is considered as a whole being whose mental and physical needs can be met in some degree in the physical recreation program. The activities to be incorporated are any and all those which stimulate body functioning and encourage an outgoing interest. Exercises which stimulate circulation and metabolism are prominent in treating the retarded and withdrawn. All patients should be given exercises stimulating respiration and circulation. Because of a tendency to flexion of the body (as is seen in the forward bending of the torso with drawing up of the knees and folding of the arms over the chest in an approach to the fetal position) those exercises featuring body extension should be stressed. Emphasis on the play element increases the possibilities of response and tends to create a favorable atmosphere for repetition of the experience. This is unique to the physical recreation program in as much as the role of the therapist tends to be that of a playmate, relatively free from the element of authority and supervision associated with the parent-child relationship which characterizes the roles of the physician and the nurse. It is the work of the therapist to encourage physical activity and provide opportunity for the physical expression of emotional drives. Physical activity in the play situation is associated with the more pleasant experiences of childhood and tend to be repeated by the patient under the appropriate stimulus. Patients may speak in a derogatory manner of a game or activity, "I used to play that when I was a child," yet are observed to participate with increased interest and at times with animation.

Grading of activity may be approached from different angles: The amount and length of time of participation, the severity and complexity of the activity, the degree of socialization provided and the extent of responsibility for the activity

given to the patient. The analysis should be made on the basis of the physical and psychological components of the activity and the activity situation. The initial approach may be indirect, consisting only of the presence of the patient in a room where a class is in progress. Then again, the therapist may approach the problem directly by working with the patient alone on the ward—throwing a soft ball directly at the patient with the hope of an automatic response of fending off or of catching the ball. The approach chosen depends upon the extent of withdrawal or of suggestibility of the patient. Frequently in a calisthenics class a retarded patient may be stimulated to activity by the passive manipulation of the patient through the exercise by the therapist or an attending nurse in unison with the group. Once started patients often will continue the exercise, even the activities of the rest of the period, under their own volition.

Analysis of calisthenics, play activities, dancing, sports will enable the therapist to assist the patient to progress from one level of activity and participation to the next higher level. Supervision of the patient is a constant procedure but is modified as the individual is capable of assuming responsibility. Throughout there is need for constant attention to the problem of providing increased opportunities for socialization. This can be graded on the basis of the ability of the patient to meet increasingly complex situations—from a two-man game of handball to participation in a basketball game as a member of a team. Different activities call for different social responses, therefore the aims vary. "Going to Jerusalem" is a group game but the activity is on a purely personal, competitive basis in pronounced contrast to the already mentioned teamwork of a basketball game. Teamwork, or cooperation with others for a common objective, is a higher socialization than individual competition.

Various factors which contribute to the success of a physical recreation program, but which are not always considered sufficiently, are the use of special clothes, the regularity of the time of the activity, the use of specific quarters, as well as the use of music, color and rhythm. The use of "gym" clothes adds to the enjoyment of the exercise because there is a feeling of greater freedom as well as the unconscious association with the play conditions of childhood. Consistency and regularity are important in the life of the schizophrenic patient, routine is essential to the feeling of security. As one patient expressed it, "I know what to expect." The specific time and place are associated with an "expected" activity.

Music, rhythm and color are ancient therapies but, despite the scientific work done in recent years, the reasons for their effect on the human organism are still unknown. However, research has proven some of the effects that these influences have on the body. Music is the most powerful influence of the three, both in its sedative and stimulating effect. Experimentation has shown that music accompanying muscular activity increases muscle contraction and delays fatigue. It also increases metabolism, effects respiration in depth and rhythm, produces marked but variable effect on blood pressure, blood volume and pulse. This action is apparently dependent upon the pitch and intensity of sound. The higher the pitch or the more intense the sound, the greater the associated contraction of a simultaneously acting muscle.

In the laboratory the action of rhythm is similar to that of music, but is dependent in its effect upon the rate and grouping of repeated sounds.[3] Although still in the experimental stage, work in the effect of sound, pitch and rhythm, on the human being suggests additional supplements to existing therapeutic approaches. Rhythm and music are not only effective when the individual is the passive recipient, but also when he makes rhythm or music himself. Counting stimulates during exercise, singing augments the rhythm of marching. Speaking or singing in unison with a group carries the individual outside of himself, unifying him with the group.

Much work has been done with color to determine the effect of different hues on living tissue. Of particular interest are the results of experimentation in hospitals for the mentally ill, where patients have been subjected to the influence of different colors. There have been definite reactions to different colors which cannot be explained on the basis of learning or association alone. The warm colors, those of short wave length as red, orange and yellow, tend to stimulate and excite; whereas the cool colors, those of long wave length as green and blue tend to quiet or depress—at least, such has been the reaction found in the cases cited. In considering color it is necessary to include design as sharp contrasts in color are exciting and abrupt change in direction of line are disturbing. Use of color can be of great value in increasing the effectiveness of activity.[4]

Success of the recreational therapy program is dependent on its integration with the total therapeutic progress. It is essential that the physician prescribe for the patient before any activity is attempted. This ensures the treatment

best suited to the needs of the individual patient, whether of a physical or of a psychological nature. It is equally important that the therapist maintain contact with the physician after the initial prescription that changes in the approach to the problem may be varied as the need arises. With mutual understanding and cooperation between the nurse and the therapist, the former can do much to influence the patient on the ward and in the gymnasium. Frequently her assistance in the class under the supervision of the therapist facilitates the work with especially retarded patients. It is often the work of the nurse to carry out a program on the ward, such as supervision of intra-ward ping-pong games.

The consideration of the current special physiological therapies cannot be omitted, as treatment by Benzedrine, electric convulsive therapy, ambulatory and shock insulin therapy present new problems. The therapist must be aware of the effects of the current treatments on the patient and be cognizant of his progress. It is necessary to know the after-effects of those treatments used and the precautions to observe in modifying the activities of a patient to meet the changes in his condition. A patient treated with Benzedrine tends to increased energy output and should be encouraged in this. It is for the therapist to provide those socially acceptable activities commensurate with the patient's energy demands. During electric convulsive therapy patients show symptoms of amnesia, emotional instability and frequently muscular discomfort and pain. It is advisable to follow (within reason) the dictates of the patient as to the amount and severity of exercise. Ambulatory and shock insulin therapy tend to enervate the patient who tends to resist physical activity. This is an important factor in the development of adipose tissue during the course of the treatment, often causing grotesque and awkward appearances. The therapist must be aware of the symptoms of hypoglycemia, as delayed reactions are not infrequent during a course of treatment.

The variety in forms of activity enable a varied and stimulating program with which the therapist responsible for the recreational program may work. Activity is not confined to a single workroom, but ranges from the gymnasium to the outdoors and the ward. It includes formal work, as in calisthenics; informal work, as in games and competitive sports; outdoor activity from walking and hiking to organized sports; and wide ranges of social activities, as dancing classes and socials. In all phases of the work there is excellent opportunity for developing activity grading to meet the demands of the patient's needs. Certainly there seems no need for the therapist carrying out a physical recreation program to become bored or stereotyped.

REFERENCES

[1]Lewis, Nolan D.C., M.D.: Constitutional Factors in Dementia Praecox. Nervous and Mental Disease Monograph Series No. 35 (1923).

[2]Hinsie, L. E., M.D.: Clinical Manifestations of the Catatonic Form of Dementia Praecox. Psychiatric Quarterly, Vol. VI, July 1932. Pp. 469-474 (reprint).

[3]Podolsky, Edward, M.D.: The Doctor Prescribes Music, 1939. Frederick A. Stokes Co.

[4]Podolsky, Edward, M.D.: The Doctor Prescribes Color, 1938. The National Library Press, New Yrok.

BIBLIOGRAPHY

Kinesiology

Bowen and McKenzie: Applied Anatomy and Kinesiology. Lea and Febiger. Phila., 1941. (5th ed.)

Rathbone, J. L., Ph.D.: Corrective Physical Education. W. B. Saunders Co., Phila., 1941. (2nd ed.)

Recreational Therapy

Davis, John E.: Psychiatric Concepts of Recreation. O.T.&R., Vol. 21, No. 1, Feb. 1942.

Karnosh, L. J. and Gage, E. B.: Occupational and Recreational Therapy. Psychiatry for Nurses, C. V. Mosby Co., St. Louis, 1940. Chap. 26, pp. 275-280.

Lewis, George: Schizophrenia, Recreational Therapy as a Part of Nursing Care. Amer. J. Nurs., Nov. 1933. pp. 1051-1055.

Shaffer, G. W. and Noble, D., M.D.: New Ways in Recreational Therapy. O.T.&R., Vol. 21, No. 5, Oct. 1924. p. 268.

Psychology

Davis, J. E.: Psychiatric Concepts of Recreation. O.T.&R. Vol. 21, No. 1, Feb. 1942. p. 1.

Davis, J. E.: Utilization of Play in Construction of Healthy Mental Attitudes. Mental Hygiene, Jan. 1936. pp. 49-54.

Emery, M., O.T.R.: Color Therapy. O. T. & R., Vol. 21, No. 1. Feb. 1942. p. 41.

Groves, E. R. and Blanchard, P.: Play, Art and Experience. Readings in Mental Hygiene, Henry Holt & Co., 1936. Chap. 11, pp. 389-415.

Mosse, E. P., M.D.: Color Therapy, O.T.&R., Vol. 21, No. 1. Feb. 1942. p. 33.

Riggs, A. F.: Play, Recreation in a Balanced Life. Doubleday Doran & Co., Inc. 1935.

Searl, M. N.: Play, Reality and Aggression. International Journ. of Psychoanalysis, Vol. 14, 1933. pp. 310-320.

Selvin, Ben: Music While You Work. Music & Rhythm Mag., Aug. 1942.

Timme, Arthur R., M.D.: The Significance of Play and Recreation in Civilized Life, Mental Hygiene, 1934. Vol. 18, pp. 51-58.

Walder, Robert: The Psychoanalytic Theory of Play. Psychoanalytic Quarterly, 1933, Vol. II, pp. 208-224.

Schizophrenia

Storch, A., M.D.: Schizophrenia, The Primitive Archaic Forms of Inner Experiences and Thought. Nerv. & Ment. Dis. Pub. Co., 1924.

War and Post-War Rehabilitation of Handicapped Persons

Michael J. Shortley

The Vocational Rehabilitation Amendments of 1943, approved by the President on July 6, 1943, provide the necessary framework within which a peace-time as well as a war-time program of rehabilitation will be administered. The scope of services available to disabled persons now and after the war has been broadened to include any services necessary to render them capable of engaging in remunerative employment or to render them more advantageously employable. These include surgical and medical care, hospitalization, therapeutic treatment, artificial appliances, vocational guidance and training, maintenance during training, and placement in employment. In contrast, the Vocational Rehabilitation Act of 1920, under which authorization the rehabilitation program has operated during the last 23 years, limited the use of Federal funds to training and furnishing of prosthetic appliances.

Other changes made by the new Amendments concern the groups of disabled individuals to be served and the methods of financing this Federal-State program. Mentally as well as physically disabled individuals are now eligible for rehabilitation. Specific provision has been made for the rehabilitation of the blind and war disabled civilians, the latter of whom are defined to include members of the citizens defense corps, aircraft warning service, civil air patrol, and the merchant marine.

The fiscal provisions have been liberalized, with the old limitation of 3½ million dollars appropriated annually by the Federal Government for matching purposes having been removed. Grants to the States may now be based on actual requirements and the amount of State funds available for matching, rather than on the basis of population as provided by the Act of 1920.

Under the Amendments of 1943, the Federal Government will assume the entire cost of administration of State programs in contrast to the previous requirement of matching on a 50-50 basis. It will assume one-half of the cost of medical examinations, surgical and therapeutic treatment, hospitalization, prosthetic appliances, transportation, occupational tools and licenses, rehabilitation training, and maintenance. The entire cost of these services will be assumed by the Federal Government in the case of war disabled civilians.

Sole responsibility for the administration, supervision, and control of this program rests with the State Boards for Vocational Education. Where there is a State Commission or other Agency authorized to provide rehabilitation services to the blind, that Commission or Agency will administer the part of the rehabilitation program pertaining to this group.

Responsibility for certification of Federal funds and establishing standards rests with the Federal Security Agency. Within this Agency, an Office of Vocational Rehabilitation has been created to discharge these Federal responsibilities. The basic condition to the certification of Federal funds is a State Plan of vocational rehabilitation approved as meeting Federal requirements under the Act.

A complete State plan of vocational rehabilitation for a disabled individual is composed of nine integral factors, all of which operate to restore the individual's working and earning capacities. To meet the total needs of handicapped persons, a well-rounded program is being established to include the following services. Except where indicated, Federal reimbursement is not conditioned on the establishment of financial need.

1. *Location of Persons in Need of Rehabilitation.*

   It is important to locate such cases as early as possible in order to minimize the disorganizing effects resulting from mental and emotional conflicts. Having some assurance that a life of dependency may not be theirs, such individuals can look to the future with hope. The cooperation of all private and public health, welfare and other agencies and of individuals is necessary in locating disabled persons and in carrying out the

Director, Office of Vocational Rehabilitation, Federal Security Agency, Washington 25, D. C.

Preliminary copy of an outline prepared by the Office of Vocational Rehabilitation.

steps involved in the successful completion of their rehabilitation.

2. *Physical and Vocational Diagnosis*

As a basis for determining the individual's total rehabilitation needs, a medical diagnosis is required to establish the general health and medical history of the individual, including organic and functional conditions. The medical diagnosis and prognosis indicate the type and extent of medical or surgical care needed, and must be taken into consideration together with the vocational diagnosis. The latter consists of an analysis of the individual's intelligence, education, experience, interests, and aptitudes, as well as environmental and personality factors. In each case a complete rehabilitation plan must be made with the disabled individual, based on the results of these diagnoses.

3. *Vocational Guidance*

Most handicapped individuals are in need of guidance in selecting suitable fields of work. Guidance must be provided to relate the occupational capacities of the individual to the occupational opportunities of the community.

4. *Medical, Surgical, and Prosthetic Services*

Medical and surgical services must be closely coordinated with vocational guidance, training, and other services required in the individual case. Type of training and work tolerance must be determined jointly by the physician or surgeon and the guidance and training specialist. Many individuals may need only a prosthetic appliance and guidance before they can return to their previous employment; such appliances must be adapted to the occupational needs of the individual. With the exception of war disabled civilians and civil employees of the United States disabled in the performance of their duties, the inability of the individual to pay for the needed medical services must be established before Federal reimbursement for the cost of these services is made.

5. *Physical and Occupational Therapy and Psychiatric Services*

In some cases, the functions of impaired limbs must be restored before the individual can undertake vocational training or employment. Therapeutic services must be closely integrated with other preparatory services. Physically handicapped individuals whose minds have been distorted by the effects of their wounds or other cause, and those with mental and neurological disturbances require psychiatric care in addition to other services. Where such therapeutic and psychiatric services are parts of the medical and surgical treatments being rendered, inability to pay for these services must be established before Federal reimbursement can be made.

6. *Vocational Training*

Those disabled persons whose impairments have incapacitated them for their normal occupations, or who have never had vocational experience, or whose skills have become obsolete due to changing industrial needs resulting from technological developments, require vocational training. The success of this phase of the rehabilitation process depends in large part on the degree to which the other services are closely coordinated with it. Specific training programs will have to be geared to the needs of disabled individuals as well as the labor needs of the community.

7. *Financial Assistance*

Because of the fact that disablement comes more frequently to persons in the lower income groups, many handicapped persons will be in need of financial assistance to support themselves while they are undergoing training. Lack of such aid may jeopardize an otherwise promising rehabilitation plan, especially where the individual program may extend over a period of months. However, Federal reimbursement for the cost of maintenance during training is conditional on the establishment of need in all cases.

8. *Placement in Employment*

Upon completion of preparation, the individual must be assisted in securing employment in accordance with his physical condition, qualifications, and temperament. Such placements are effected to safeguard handicapped workers and to assure proper utilization of their abilities and skills.

9. *Follow-Up on Performance in Employment*

Follow-up is needed to determine whether the handicapped worker was properly placed. Adjustments may be found necessary; medical follow-up may be needed; a prosthetic appliance may require adjust-

ment; the individual may need supplementary training; or he may need some special assistance in adjusting himself to working with others.

Two objectives stand out in the implementation of this program. First, we must, in the present emergency, salvage disabled manpower to relieve the growing labor shortage. Second, with thousands of disabled individuals seeking employment in the post-war period, we must assure them proper facilities with which to secure employment. We must also prepare for the readjustment of handicapped workers who may be displaced by industry at the end of the war.

In the accomplishment of these objectives, full use will be made of existing voluntary and governmental agencies of the community.

Disabled persons coming to the attention of an agency or individual and who appear to be in need of rehabilitation should be referred to the Vocational Rehabilitation Division of the State Board for Vocational Education, which in most instances is located in the capital city of the State.

Exhibits Available

1. "Reproductions of the Pictures on the History of Physical Therapy":
   8 posters, 22x28 inches, containing 19 reproductions of pictures on hydrotherapy, electrotherapy, massage, exercise, etc., from the earliest times. Posters will be shipped in frames ready for hanging. Weight when packed for shipping 60 pounds.
2. A motion picture film 200 feet long, on "Massage." (16 mm.)
3. "Posture Plays an Important Part in the Physical Therapy of Bed and Convalescent Patients":
   6 posters, 22x28 inches, in frames with photographs showing: good and bad posture of a patient in bed; good and poor posture in a wheel chair; instruction in walking with crutches and with a "walker." Weight when packed for shipping approximately 60 pounds.
4. "Statistical Map" showing schools approved by the American Medical Association, location of American Physiotherapy Association Chapters, Membership, etc. Weight when packed for shipping 46 pounds. This is in pastel colors. Should be displayed on an easel as it is too heavy to hang. Size 45x35 inches.
5. Poster 22x28 on the American Physiotherapy Association. "Requirements for Membership, Curriculum Content, Scope, Membership and Chapter Growth."
6. A motion picture film (16 mm.) "The Maintenance of Neutral Position of Patients with Infantile Paralysis During Nursing Care in the Hospital and in the Home."
7. Poster showing publications of the American Physiotherapy Association individually mounted (with request slips).
8. Poster: "The Nation Needs Physical Therapists."
9. Poster on pool construction and design.

For information regarding these exhibits, write Dorothy Dean, Exhibits Chairman, P. T. Dept., 303 East Chicago Avenue, Chicago 11, Ill.

Schools Approved for Training Physical Therapy Technicians

By Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Entrance Requirements*	Emergency Course				Regular Course			
		Length in Months	Classes Start	Tuition	Certificate, Degree, Diploma	Length in Months	Classes Start	Tuition	Certificate, Degree, Diploma
Army and Navy General Hospital, Hot Springs National Park, Ark.	b	6	Oct	None	Certificate	..	.....	....	.....
Children's Hospital, Los Angeles[1]	a-b-c	6	FebAug	$200	Certificate	12	FebAug	$200	Diploma
College of Medical Evangelists, Los Angeles[1]	a-b-c	..	.....	....	.....	12	JanJuly	$200	Certificate
University of California Hospital, San Francisco[1]	a-b-c	..	.....	....	.....	12	Feb	$150	Certificate
Stanford University, Stanford University, Calif[1]	a-b-d[2]	7	Quart.	$286	Certificate	10	Quart.	$401	Cert. or Degr
Fitzsimmons General Hospital, Denver	b	6	Oct	None	Certificate	..	.....	.....	.....
Walter Reed General Hospital, Washington, D. C.	b	6	Quart.	None	Certificate	..	.....	.....	.....
Northwestern University Medical School, Chicago	a-b-d	..	.....	....	.....	9	JulyOct	$200	Certificate
State University of Iowa Medical School, Iowa City	b-c	6	MarSept	None	Certificate	9	MarSept	None	Certificate
Bouve-Boston School of Physical Education, Boston	HS	Given in conjunction with Harvard				3-4 yrs.	Sept	$400 yr.	Dipl. or Degr
Harvard Medical School, Boston	a-b-c	6	MarSept	$250	Certificate	9	MarSept	$300	Certificate
Boston University Sargent College of Physical Education, Cambridge, Mass.	a-b-c	..	.....	....	.....	24	JanOct	$435 yr.	Cert. & Degr
University of Minnesota, Minneapolis[1]	a-b-c[3]	..	.....	....	.....	12	March	$112[4]	Certificate
Mayo Clinic, Rochester, Minn.[1]	a-b-c	6	JanJuly	None	Certificate	9	JanJuly	None	Certificate
Barnes Hospital, St. Louis	a-b-c	..	.....	....	.....	9	Oct	$200	Certificate
St. Louis University School of Nursing, St. Louis[1]	HS	8	JanSept	$250	Certificate	4 yrs.	JanSept	$250 yr.	Cert. or Degr
O'Reilly General Hospital, Springfield, Mo.	b	6	Oct	None	Certificate	..	.....	....	.....
Columbia University, New York City	a-b-c	..	.....	....	.....	9	FebSept	$390	Certificate
Hospital for Special Surgery, New York City[1]	a-b-c	..	.....	....	.....	9	Sept	$300	Diploma
New York University, New York City[1]	a-b-c	..	.....	....	.....	9	FebSept	$396	Cert. & Degr
Duke University School of Medicine, Durham, N. C.	a-b-c	..	.....	....	.....	9	Sept	$200	Certificate
Cleveland Clinic Foundation Hospital, Cleveland	a-b-c	..	.....	....	.....	9	Sept	None	Certificate
D. T. Watson School of Physiotherapy, Leetsdale, Pa.[1]	a-b-c	6	JanJuly	$200	Diploma	12	July	$200	Diploma
Graduate Hospital of the University of Pennsylvania, Pa.[1]	a-b-c	..	.....	....	.....	12	Sept	$200	Certificate

Name and Location of School	Entrance Requirements*	Emergency Course: Length in Months	Emergency Course: Classes Start	Emergency Course: Tuition	Emergency Course: Certificate, Degree, Diploma	Regular Course: Length in Months	Regular Course: Classes Start	Regular Course: Tuition	Regular Course: Certificate, Degree, Diploma
Brooke General Hospital, San Antonio, Tex.	b	6	Oct	None	Certificate	..	.....	.....	.....
University of Texas School of Medicine, Galveston	a-b-c	..	.....	....	.....	9	JanMar July	$130	Certificate
Richmond Professional Institute, Richmond, Va.	a-b-d[5]	6	Sept	$200[4]	Certificate	9-12	Sept	$200-220	Certificate
University of Wisconsin Medical School, Madison[1]	a-b	6	FebSept	$96[4]	Certificate	12	Sept	$96[4]	Certificate

* Courses are so arranged that any of the entrance requirements will qualify students for training. a = Graduation from accredited school of nursing; b = Graduation from accredited school of physical education; c = Two years of college with science courses; d = Three years of college with science courses; HS = High school graduation.

1. Male students are admitted.
2. High school graduates accepted for a four-year course leading to A.B. degree; students admitted quarterly and tuition is $143 per quarter.
3. Medical technology graduates with B.S. degree also admitted.
4. Nonresidents charged additional fee.
5. Those with degree from other colleges also accepted.

For information regarding education write to Miss Mary Nesbitt, Chairman, Education Committee, Massachusetts General Hospital, Boston, Mass.

Reprints

"Physical Therapy as a Vocation"
"Approved Schools of Physical Therapy"
The Constitution of the American Physiotherapy Association
Code of Ethics and Discipline of the American Physiotherapy Association
The Blue Booklet, "The American Physiotherapy Association is Organized to Serve"
"What Does a Physical Therapy Department Contribute to a Hospital?"
"Opportunities for the Physical Therapist"
"Role of the Physical Therapist in the Care of the Crippled Child"
"Ethics and the Physical Therapy Technician"
Ideal Pre-Physical Therapy Curriculum Outline

To obtain any or all of these reprints, address Hazel E. Furscott, Chairman, Relations Committee, 219 Fitzhugh Building, San Francisco, California. Single reprints, 10c; complete set of reprints, 25c. Free to nonmembers.

The Physiotherapy Review

Editor-in-Chief: MILDRED ELSON
Business Manager: HAZEL PUTMAN
Associate Editors
GERTRUDE BEARD
LOUISE REINECKE
BESS SEARLS

The Physiotherapy Review is published bimonthly by
The American Physiotherapy Association
Editorial and Business Office,
720 N. Michigan Ave., Room 1100, Chicago, 11

VOL. 24 *March-April* No. 2

Our annual conference is being held this year in New York City at the Pennsylvania Hotel, May 17 to 22. Since we did not meet last year, attendance at this meeting is doubly important. Our association is growing up rapidly and there is much that is important to be discussed and voted upon.

We urge that every chapter be represented and that the constitutional amendments which will be sent to you be thoroughly discussed in chapter meetings prior to convention. There is to be a session on chapter problems. Every chapter has its problems, perhaps some other chapter has a solution, and a round table discussion is of unmeasurable value. Be sure your delegates have all the information and are properly instructed.

A glance ahead to the "Rehabilitation" program fills us with pride. A small beginning was made two years ago at Lake Geneva, through the efforts of Hazel Furscott, our Relations Chairman, who foresaw the part we should take in rehabilitation and did something about it. To say that the program she has arranged for this conference is outstanding is an understatement. You cannot afford to miss it.

We urge you to attend; it is your conference and what you think and contribute either individually or through your elected delegates is what makes us as an association continue to grow in scope and understanding.

Annual Conference of the American Physiotherapy Association

Program Schedule

Wednesday, May 17

9 a.m.-12 noon	Physical Therapy School Section
2 p.m.-5 p.m.	Business Meeting
7 p.m.-9 p.m.	Organization of House of Delegates

Thursday, May 18

9 a.m.-12 noon	Chapter Problems
12 noon-2 p.m.	Crippled Children School Section
2 p.m.-5 p.m.	Round Table on Physical Therapy in Poliomyelitis

Friday, May 19

9 a.m.-12 noon	Rehabilitation
2 p.m.-5 p.m.	Rehabilitation
5 p.m.-7 p.m.	Dinner Meeting

Saturday, May 20

9 a.m.-12 noon	Rehabilitation
12 noon-2 p.m.	Luncheon: Organization of Public Health Section
2 p.m.-5 p.m.	Rehabilitation

Sunday, May 21

9 a.m.-12 noon	Business Meeting
2 p.m.-5 p.m.	Meeting of Old and New Executive Committee

Round Table Discussion of the Integration of All Facilities Essential to a Rehabilitation Program

A. Analysis of existing plans of rehabilitation.
  1. The American plan.
    a. The Army set-up.
    b. The Navy set-up.
    c. The industrial set-up.
    d. The Veterans' Administration.
    e. Federal Security program of vocational rehabilitation.
      (1) Federal program.
      (2) State program.
    f. Crippled children's program.

g. The National Council on Rehabilitation.
h. The State Councils on Rehabilitation.
i. Rehabilitation legislation.
(1) Federal.
(2) State.
(3) Compensation laws.
2. The English plan.
3. The Russian plan.
4. The German plan.

B. Stages of rehabilitation.
1. Diagnosis, medical and surgical treatment.
2. Before medical and surgical treatment.
3. Immediately after medical and surgical treatment.
4. Convalescence.
5. Vocational training.

C. The use of the following facilities in each of the above stages.
1. Surgery, psychiatry, and medicine.
2. Physical therapy.
3. Occupational therapy.
4. Curative workshop and sheltered workshop.
5. Recreational therapy.
6. Vocational therapy.
7. Vocational education.

D. Integrating the use of all these facilities into the various stages of recuperation.

Participants in the above program will be as follows:

Lt. Colonel Howard A. Rusk, Convalescent Training Branch, Army Air Forces.

Major Emma E. Vogel, Director, Physical Therapy Aides, Office of the Surgeon General, U. S. Army.

Colonel Leonard T. Peterson, Director, Orthopedic Surgery, Office of the Surgeon General, U. S. Army.

Mrs. Winifred C. Kahmann, OTR, Supt., Occupational Therapy Branch, Office of the Surgeon General, U. S. Army.

Mr. W. H. Seymour, Vice-President, Liberty Mutual Insurance Company.

Mr. Stanwood L. Hanson, Assistant Vice-President, Liberty Mutual Insurance Company.

Representative of the Medical & Hospital Service, Veterans' Administration.

Mr. Michael J. Shortley, Director, Office of Vocational Rehabilitation, Federal Security Agency.

Dean A. Clark, Surgeon (R), USPHS, Chief Medical Officer, Office of Vocational Rehabilitation, Federal Security Agency.

Miss Tracy Copp, Regional Representative, Office of Vocational Rehabilitation, Federal Security Agency.

Mr. J. M. Dodd, District Vocational Rehabilitation Supervisor, Bureau of Vocational Rehabilitation, San Francisco, California.

A. L. Van Horn, M.D., Assistant Director, Children's Bureau, U. S. Dept. of Labor.

Miss Bell Greve, Executive Secretary, The Ass'n for the Crippled and Disabled, Cleveland.

Miss Mildred Elson, Editor, Physiotherapy Review, American Physiotherapy Association.

Frank H. Krusen, M.D., Associate Professor of Physical Medicine, The Mayo Foundation; Director, Baruch Committee on Physical Medicine.

Mr. S. Paul Campbell, Director, Physical Therapy, Pennsylvania Hospital, Philadelphia, Pa.

Mrs. John A. Greene, President, Boston School of Occupational Therapy.

Miss Mary Castle, Director, Dept. of Physical Therapy, Rehabilitation Center, Boston.

Miss Elizabeth Martin, Percy Jones General Hospital, Battle Creek, Mich.

Don Gudakunst, M. D., National Foundation of Infantile Paralysis, New York City.

Mr. Basil O'Connor, National Foundation of Infantile Paralysis, New York City.

Miss Helen Kaiser, Duke University, Durham, N.C.

Miss Lucile Daniels, Stanford University, Calif.

Miss Catherine Worthingham, Stanford University, Calif.

Mr. Oliver A. Friedman, National Association of Goodwill Industries, Inc.

K. G. Hansson, M. D., Hospital for Special Surgery, New York City.

Member of Staff of Colonel Olveta Culp Hobby, WAC.

Report of Nominating Committee

The Nominating Committee submits the following ticket:

President: Jessie L. Stevenson, Joint Orthopedic Nursing. Advisory Service, 1790 Broadway, New York, N. Y.

First Vice-President: Barbara White, 239 East 58th St., New York 22, N. Y.

Second Vice-President: Emma Schrampf, 22 East 69th St., New York, N. Y.

Secretary: Margaret O'Neill, Reconstruction Home, West Haverstraw, N. Y.

Treasurer: S. Paul Campbell, 111 North 49th St., Philadelphia 39, Penna.

Directors: Catherine Worthington, Stanford University, Calif.; Ruth E. Pratt, 3844 Floral Ave., Cincinnati, Ohio; Dorothy Dean, P. T. Dept., 303 East Chicago Ave., Chicago, Ill.

Chapter Relations

The following reports from two of our chapters show what they have done in the way of "Relations" activities so far this year. These reports are submitted with the hope that other chapters may gain suggestions that they too can use.

Miss Ellen R. Hibbert and Miss Nora B. Hoel are Relations Chairmen of the Colorado and Minnesota Chapters respectively.

Submitted by:
(MRS.) MARGERY L. WAGNER,
Chapter Relations Chairman
American Physiotherapy Association.

COLORADO CHAPTER

Contact was made with the Council for the Rehabilitation for the Handicapped and some of the meetings attended by the Relations Chairman. Associates of the Council have been invited to attend A.P.A. Chapter meetings.

Occupational therapy technicians were invited to attend meetings when subjects of interest to them were to be discussed. Students of physical therapy and others interested in the work also have been invited to attend.

Looking at it from various angles, besides increasing the audience for the speaker, we think there are decided advantages on both sides, including outside organizations who find it of interest to attend our meetings.

During the recent poliomyelitis epidemic, instructions in the Kenny method for infantile paralysis was given to classes, groups, and individuals by Mr. Gosta Valdemar and assistant physical therapy staff at the Children's Hospital in Denver. Mr. Valdemar also has addressed various organizations and shown moving pictures of the work done at the hospital. He was called to some small towns and outlying districts for instruction and consultation regarding the Kenny treatment.

Members of the Chapter enjoyed entertaining the service men at the Y.W.C.A. group of the U.S.O. in Denver. Refreshments were provided through donations from the members.

All meetings have been announced in a local newspaper.

MINNESOTA CHAPTER

The Minnesota Chapter of the American Physiotherapy Association is attempting to keep in stride with a progressive program for the promotion of our physical therapy profession.

Our posture program, which was started last year primarily for the purpose of extending some basic knowledge of physical therapy into the student nurses' curriculum, has been continued again this year. These classes also are attended by supervisors in nursing arts and are being instructed by various members of the Minnesota Chapter of the A.P.A.

Active, well-organized classes are being conducted in the following Minneapolis hospitals: Abbott, Asbury, Fairview, General, Swedish, St. Barnabas, and University. In St. Paul, classes are held at the Miller and St. Joseph's hospitals. Also, instructions have been given to nurses and technicians of the Minnesota State Guard. At the present time plans are made for this same work to be extended to the hospitals in Duluth. In addition to these classes for nurses, instructions have been given to Grey Ladies and Nurses' Aids.

Talks to promote interest in physical therapy have been given to Parent-Teacher Associations at the Michael Dowling School for Crippled Children, and also to home nursing classes in rural communities of the state.

Subscriptions to THE PHYSIOTHERAPY REVIEW are paid for out of Minnesota Chapter funds and placed for general use in the University Medical Library, Gillette Hospital Library, Ramsey County Medical Society and Hennepin County Medical Society.

Minnesota Chapter has been interested in heeding the call from the armed forces in the service of our country. On October 14, 1943, Major Glenn Bronson of the Officers Procurement Office talked to our group, urging enlistment in military duty. At the present time, eight Minnesota members are in active service and two other members are expecting to be called this month.

On January 10, 1944, Mr. D. H. Dabelstein, who in past years has been director of the Minnesota Vocational Rehabilitation Division and now is in Washington, gave a discussion on the new Vocational Rehabilitation Bill.

Minnesota Chapter was represented on January 15, 1944, at the meeting of the Allied Organizations to make plans for the forthcoming State Hospital Convention when the Minnesota Chapter will take an active part.

Plans for closer relationship to members of the Occupational Therapy Association and other agencies also have been discussed. We hope to continue enlarging our program.

New York and Pennsylvania Chapters

On Friday evening, February 4, 1944, The American Physiotherapy Association, represented by the New York and Pennsylvania Chapters held a joint meeting with the National Foundation for Infantile Paralysis, Inc., at the Hotel Pennsylvania, New York. Mr. A. Garman Dingwall, President of the New York Chapter, presided.

Mr. Basil O'Connor, President of the National Foundation for Infantile Paralysis, spoke on "Your Foundation." Dr. Frank H. Krusen, Director of Physical Medicine of the Mayo Clinic spoke on "Recent Advances in Physical Medicine." Dr. K. G. Hansson of New York gave us an evaluation of the statistics in recent epidemics of infantile paralysis. Comments were by Drs. George Deaver, Richard Kovacs and Don W. Gudakunst.

The meeting was attended by approximately 300 members and guests and the physical therapy departments of nearby Army Hospitals were represented. A buffet supper was served at the close of the meeting, and an interesting social hour was enjoyed.

Meetings of this nature are stimulating, and it is hoped that in the future these chapters can have further meetings on equally interesting subjects.

California Chapter

The passing of Miss Katherine Scott, on August 25, 1943, closed a fruitful life of service. In fact she was on her way to a patient's home to give a Kenny treatment when her car was struck by a train.

Miss Scott was admired by all her associates in physical therapy and respected by the medical profession of Santa Barbara where she had lived and worked for many years.

After serving as a nurse in the World War I she became interested in physical therapy and forthwith made that her vocation. Always on the alert for new and better technics she was among the first to take the Kenny course at Children's Hospital in Los Angeles, and she gave superb care to the recent poliomyelitis cases which occurred prior to her death. She was an active member of the American Physiotherapy Association since 1931, and a charter member of the Santa Barbara District.

Esteemed by the physicians, loved by her coworkers and by her patients her memory is to be honored by the establishment of a memorial fund to furnish care for handicapped individuals.

Chartered Society of Physiotherapy

The following letter, dated December 14, 1943, has been received from the Chartered Society of Massage and Medical Gymnastics:

Dear Sir/Madam,

Your attention is drawn to the fact that by permission of the Privy Council the name of the Chartered Society of Massage and Medical Gymnastics has now been changed to The Chartered Society of Physiotherapy.

This change of name is indicative of the wide scope of the work undertaken by the Chartered Society's members.

Physiotherapy means a great deal more than massage. It includes as an important part of its subject, remedial gymnastics for both medical and surgical conditions, and electrotherapy, and, with all these, sympathy and understanding, without which no practitioner can hope to aid his patient in his cure.

The Chartered Society now has 13,922 members who are doing valuable work not only in the rehabilitation of civilians and Service men in this country, but with our fighting forces in all theaters of war. The Chartered Society's Massage Corps is the source of supply of skilled physiotherapists for work in hospitals at home, and today 200 of its members are treating sick and wounded Service men in countries as far afield as North Africa and India.

Yours faithfully,

D. C. WORSFOLD,
Secretary.

Women's Army Corps

In order to meet the urgent need of the Army for qualified physical therapy aides, women may now be recruited for the Women's Army Corps in order to attend one of the six months' courses in physical therapy offered by the Medical Department of the Army.

To be eligible for this training, an applicant must be a citizen of the United States, must not have passed her 44th birthday on the opening date of the course, must have no dependent children under 14 years of age, must meet the physical requirements as prescribed in Army Regulations, must have completed four years of college with emphasis in physical education or two years of college including satisfactory courses in biology and other sciences and must have completed her basic military training in the Women's Army Corps.

Those who successfully complete this course in physical therapy will be assigned to selected Army hospitals for three months of practical

experience in the actual treatment of patients. Upon the satisfactory completion of three months of experience in an Army hospital, these enlisted women will be eligible to request release from the Women's Army Corps in order to apply for an appointment as Medical Department Physical Therapy Aide with the relative rank of 2nd Lieutenant. These officers will be assigned to Army hospitals wherever needed in this country or overseas.

All applicants for enlistment in the Women's Army Corps, in order to attend one of these courses will be forwarded to the Office of The Surgeon General, Washington, D. C., for review and approval prior to final enlistment.

Application blanks and additional information may be obtained from the nearest recruiting office of the Women's Army Corps or from the Office of The Surgeon General, Attention: Physical Therapy Section.

New England Society of Physical Medicine

The New England Society of Physical Medicine held a meeting on "The Technic and Results of the Kenny Treatment" in Boston on February 16, 1944. A discussion and demonstration of the Kenny treatment (with motion pictures of acute cases) was given by A. Dorothy Fredrickson, Assistant Technical Director and Instructor of Physical Therapy, Children's Hospital, Boston, who recently had been a student of Sister Kenny at the Minneapolis Hospital.

The Hebrew Medical Journal

The attention of the medical profession is directed to the appearance of Volume I and II, 1943, of HAROFE HAIVRI (The Hebrew Medical Journal), a semi-annual publication, edited by Moses Einhorn, M.D.

Both volumes are dedicated to a timely symposium on war medicine. Among the subjects discussed of particular interest are "The Treatment of Gunshot Wounds of the Head and Brain during the Present War" by Dr. Leo M. Davidoff; "The Early Treatment of War Wounds with Emphasis on Prevention of Deformities" by Dr. J. W. Mainiac; "Some Personal Observations on Military Surgery" by Dr. Ed. K. Barsky; "Newer Conceptions of the Treatment of Burns" by Dr. Jesse Bullowa and Dr. C. L. Fox, Jr.; "The Status of Anesthesia in Military Surgery" by Dr. S. D. Ehrlich; "Shock Syndrome and Its Treatment" by Dr. S. Standard; "Ocular Injuries in Chemical Warfare" by Dr. Ed. B. Gresser; "Physical Therapy in War Medicine" by Dr. Wm. Bierman; and "The Importance of the Proper Prosthesis in Post-War Rehabilitation" by Dr. H. M. Wertheim.

Occupational Therapy Exhibition

An exhibition entitled "Occupational Therapy in War and Peace" will be shown April 17 through May 21, 1944, at the Philadelphia Art Alliance, 251 South 18th Street, Philadelphia 3, Penna. There will be a display of occupational therapy work from patients in Army, Navy and civilian hospitals, and a special exhibit from the Convalescent Training Branch, Medical Service Division, Army Air Force. Patients from Army, Navy and Curative Workshop will be at work in a "Functional Occupational Therapy Workshop" Tuesday afternoons and evenings throughout the show.

Two excellent articles on physical therapy as a vocation have appeared recently. "Physical Therapy Technicians" by M. G. Westmoreland, M.D., appeared in the February 1944 issue of HYGEIA, and "Opportunities for the Physical Therapist" by Betty A. Rice, Education Committee, American Physiotherapy Association, appeared in OCCUPATIONS, THE VOCATIONAL GUIDANCE MAGAZINE for November 1943.

New Members

The following are new members of the American Physiotherapy Association whose applications were approved on January 24, 1944:

Ambrose, Doris, 139 Catherine St., Springfield, Ohio.
Armstrong, Isabelle, Brooke General Hospital, Fort Sam Houston, Tex.
Brooks, Pearl B., Bushnell General Hospital, Brigham City, Utah.
Cox, Barbara L., Fitzsimons General Hospital, Denver, Colo.
Flanagin, Jane C., McCloskey General Hospital, Temple, Tex.
Gass, Beatrice, 27 Country Road, Chelsea, Mass.
Gately, Florence L., Fitzsimons General Hospital, Denver, Colo.
Healy, Vera E., Fitzsimons General Hospital, Denver, Colo.

Hillman, Evelyn K., 175 Division Street, New Rochelle, N. Y.
Jones, Elizabeth E., Fitzsimons General Hospital, Denver, Colo.
Katz, B. Lee, 2049 E. 11th St., Cleveland, Ohio.
McLeod, Lt. June, Overseas.
Meager, Marion A., Wisconsin General Hospital, Madison, Wisc.
Menzel, Mary J., Fitzsimons General Hospital, Denver, Colo.
Monroe, Martha K., Finney General Hospital, Thomasville, Ga.
Mortimore, Phyllis, Georgia Warm Springs Foundation, Warm Springs, Ga.
Orr, Betty Lorraine, 1216 N. Edgemont, Los Angeles, Calif.
Pagendarm, 2nd Lt., Violet, Nurses Quarters, Torney General Hospital, Palm Springs, Calif.
Peterson, Stella C., Hinsdale Sanitarium, Hinsdale, Ill.
Ryan, John L., 3808 N. W. 11th St., Oklahoma City, Okla.
Short, Margery F., Brooke General Hospital, Fort Sam Houston, Tex.
Staudaker, Clara, 120 N. Orchard St., Madison, Wisc.
Windham, Georgiana, Brooke General Hospital, Fort Sam Houston, Tex.

* * * * *

The following new members were accepted on February 17, 1944:
Bovee, Jeanne A., O'Reilly General Hospital, Springfield, Mo.
Bradberry, Evelyn M., P. T. Dept., O'Reilly General Hospital, Springfield, Mo.
Brink, Reta B., Hammond General Hospital, Modesto, Calif.
Campbell, Lt. Ruth C., Station Hospital, Camp Davis, N. C.
Cate, Emily H., Columbia Hospital, Columbia, S. C.
Cushing, Lorraine, Shriners' Hospital, Roosevelt Blvd., Philadelphia, Pa.
Dillon, Edna L., Percy Jones General Hospital, Battle Creek, Mich.
Grunewald, Emma M., O'Reilly General Hospital, Springfield, Mo.
Lilga, Mrs. Marjorie P., 915 Lincoln Blvd., Clinton, Iowa.
Lindberg, Geraldine D., O'Reilly General Hospital, Springfield, Mo.
Nuessle, Eileen, 4732 Upton Ave. South, Minneapolis, Minn.
Poarch, Mrs. Wanda, 727 E. Washington St., Iowa City, Iowa.
Ryan, Mrs. Mary S., Lawson General Hospital, Atlanta, Ga.
Sanders, Carrie A., O'Reilly General Hospital, Springfield, Mo.
Sargent, Elizabeth A., Hospital No. 3, Nurses Quarters, Fort Bragg, N. C.
Schemmel, Sarah Penrose, 2823 Second Ave. West, Hibbing, Minn.
Walsh, Frances I., McCaw General Hospital, Walla Walla, Wash.
Wright, Frances M., Ashford General Hospital, White Sulphur Springs, W. Va.

Friends of Miss Mary McMillan will be glad to hear that she arrived safely in this country on the Grispsholm.

Index to Current Literature

Acclimatization

Rapid Acclimatization to Work in Hot Climates. SID ROBINSON, E. S. TURRELL, H. S. BELDING AND S. M. HORVATH. Amer. J. Physiology, Nov. 1, 1943.

The Persistence of Heat Acclimatization in Man. AUSTIN HENSCHEL, HENRY LONGSTREET TAYLOR AND ANCEL KEYS. Amer. J. Physiology, Dec. 1, 1943.

Amputations

The Care of Patients with Amputations. MARGARET S. AREY, R.N. Amer. J. Nursing, Feb. 1944.

An Amputated Leg at Twenty-One. MARY E. GILMORE, R.N. Amer. J. Nursing, Feb. 1944.

Anterior Poliomyelitis

Problems in Early Treatment of Poliomyelitis. JESSIE WRIGHT, M.D. N. Y. State J. Med., Jan. 1, 1944.

Physiologic Nonsense and Poliomyelitis. Current Comment, J.A.M.A., Jan. 22, 1944.

A Case of Poliomyelitis in a Newborn Infant. A. H. BIERMANN, M.D., AND E. A. PISZCZEK. J.A.M.A., Jan. 29, 1944.

The Kenny Concepts and Treatment of Infantile Paralysis. A. BRUCE GILL, M.D. J. Bone and J. Surg., Jan. 1944.

Experiences with the Kenny Treatment for Acute Poliomyelitis in the Epidemic of 1942, Monmouth and Ocean Counties, New Jersey. NICHOLAS S. RANSOHOFF, M.D. J. Bone and J. Surg., Jan. 1944.

Analysis of Neuromuscular Disorders in Poliomyelitis. JOSEPH MOLDAVER, M.D. J. Bone and J. Surg., Jan. 1944.

Arthritis and Rheumatism

Hormonal Production of Arthritis. HANS SELYE, M.D., OCTAVIA SYLVESTER, B.Sc., C. E. HALL, M.Sc., AND C. P. LEBLOND, M.D. J.A.M.A., Jan. 22, 1944.

Bone and Joint Diseases and Injuries

Tennis-Elbow. JAMES CYRIAX, M.D. Brit. J. Phys. Med. and Industrial Hygiene, Jan.-Feb. 1944.

Sulfonamides in the Treatment of Chronic Osteomyelitis. J. ALBERT KEY, M.D. J. Bone and J. Surg., Jan. 1944.

Burns

Oral Sodium Lactate in the Treatment of Burn Shock. CHARLES L. FOX JR., M.D. J.A.M.A., Jan. 22, 1944.

Cerebral Palsy

A New Center for Cerebral Palsy Children. LAWRENCE J. LINCK. Crippled Child, Feb. 1944.

Dermatology

Dermatitis Caused by Representatives of Anacardiaceae in Tropical Countries. E. D. MERRILL, Sc.D. J.A.M.A., Jan. 22, 1944.

Treatment of Birthmarks. WILBUR BAILEY, M.D., AND WILLIAM KISKADDEN, M.D. Calif. and Western Med., Nov. 1943.

Electrotherapy

Electric Shock Therapy in Manic Depressive Psychoses. MARGARET T. ROSS, M.D. N. Y. State J. Med., Nov. 1, 1943.

Electrodiagnostic Interpretations in Nerve Lesions. PHILIPPE BAUWENS. Brit. J. Phys. Med. and Industrial Hygiene, Jan.-Feb. 1944.

Exercise

Exercise for the Orthopedic Convalescent. CAPT. JAMES T. STEPHENS, M.C., A.U.S. Arch. P. T., Feb. 1944.

Eye, Ear, Nose and Throat

Physical Therapeutic Procedures in Otolaryngology. A. R. HOLLENDER, M.D. Digest of Ophthal. and Otolaryng., Feb. 1944.

Fever Therapy in Ophthalmology. FREDERICK C. CORDES, M.D. Digest of Ophthal. and Otolaryng., Feb. 1944.

Foot Conditions

Pes Planus: Military Significance and Treatment with Simple Arch Support. MAJOR FREDERIC W. ILFELD, M.C., A.U.S. J.A.M.A., Jan. 29, 1944.

Painful Feet: Congenital Insufficiency of the First Metatarsal Segment as a Cause Among Soldiers Recently Inducted into the Army. CAPT. ROBERT BINGHAM, M.C., A.U.S. J.A.M.A., Jan. 29, 1944.

Common Foot Disorders—Rehabilitation with Physiologic Exercises. EMIL D. W. HAUSER, M.D. Arch. P. T., Feb. 1944.

The Human Foot: A Study of Its Structure and Function—New Functional Exercises. ERNST H. BETTMANN, M.D. Arch. P. T., Jan. 1944.

Fractures

The Treatment of Fractures by Physical Therapy. CAPT. PHILIP R. STEWART, M.C., A.U.S. Arch. P. T., Jan. 1944.

March Fracture: A Common Disability of the Foot in Military Practice. CAPT. CARL E. BOSSHARDT, M.C., A.U.S. Arch. P. T., Jan. 1944.

Blade-Plate Internal Fixation for Intertrochanteric Fractures. AUSTIN T. MOORE, M.D. J. Bone and J. Surg., Jan. 1944.

Compression Fractures of the Vertebral Bodies and Other Changes Mistaken for Them. JOHN D. ELLIS, M.D. J. Bone and J. Surg., Jan. 1944.

March Fracture: Report of a Case Involving Both Fibulae. LT. COL. A. SCOTT HAMILTON AND MAJOR HOWARD E. FINKELSTEIN. J. Bone and J. Surg., Jan. 1944.

March Fractures. CAPT. BAXTER L. CLEMENT. J. Bone and J. Surg., Jan. 1944.

Delayed Reduction of Fractures. JOHN R. MOORE, M.D. J. Bone and J. Surg., Jan. 1944.

Multiple Metatarsal Fractures Associated with Osteogenic Sarcoma. HENRY W. MEYERDING, M.D. J.A.M.A., Jan. 22, 1944.

Hydrotherapy

American Health Resorts: Types of Treatment Administered at Health Resorts. M. B. JARMAN, M.D. J.A.M.A., Jan. 22, 1944.

Modern Hydrotherapy: A Review of Recent Developments. H. J. BEHREND, M.D. Arch. P. T., Jan. 1944.

Hyperpyrexia

Fever Therapy in Ophthalmology. FREDERICK C. CORDES, M.D. Digest Ophthal. and Otolaryng., Feb. 1944.

Low Back Conditions

Diagnosis and Treatment of Low Back Pain. LT. E. K. STUCKY, M.C., A.U.S. Arch. P. T., Jan. 1944.

Low Back Pain: Its Prevention and Treatment. HUGH BURT. Brit. J. Phys. Med. and Industrial Hygiene, Jan.-Feb. 1944.

Clinical Use of the Chamberlain Technic in Sacroiliac Conditions. RANDOLPH L. ANDERSON, M.D., AND VERNON L. PETERSON, M.D. J.A.M.A., Jan. 29, 1944.

Massage

Massage: Its Use and Abuse. J. Chart. Soc. Physiotherapy, Jan. 1944.

Miscellaneous

Some Observations on the Adaptation of the Double Beam Cathode-Ray Oscilloscope to Biology and Medicine. G. E. DONOVAN, M.Sc. Proc. Royal Soc. Med., Sept. 1943.

Management of the Venereal Diseases in the Army. LT. COL. THOMAS B. TURNER AND MAJOR THOMAS H. STERNBERG. J.A.M.A., Jan. 15, 1944.

The Treatment of Sulfonamide Resistant Gonorrhea: Preliminary Report. LT. EARL C. LOWRY, AND CAPT. LINUS W. NEWIT. Military Surgeon, Dec. 1943.

The Significance of Vascular Hyperreaction as Measured by the Cold-Pressor Test. HENRY I. RUSSEK, M.D. Amer. Heart J., Sept. 1943.

The Effect of Temperature of the Blood on the Heart Rate. ERNEST K. LANDSTEINER AND MORRIS HAYES. Amer. J. Physiology, Nov. 1, 1943.

Treatment of Undulant Fever. Brit. Med. J., Dec. 4, 1943.

Autotransfusion of Irradiated Blood. LT. HARRY A. BRADLEY, M.C., A.U.S. Arch. P. T., Feb. 1944.

Muscle Function

Observations on the Function of the Shoulder Joint. VERNE T. INMAN, M.D., J. B. DEC. M. SAUNDERS, F.R.C.S., AND LEROY C. ABBOTT, M.D. J. Bone and J. Surg., Jan. 1944.

Effect of Kenny Fomentation on the Strength of Voluntary Muscular Contraction in Man. V. E. HALL, M.D., H. M. SCHAMP, Ph.D., G. E. BROWN, M.A., AND M. N. DAVIS, B.S., R.N. Arch. P. T., Feb. 1944.

Nervous and Mental Diseases and Injuries

Electric Shock Therapy in Manic Depressive Psychoses. MARGARET T. ROSS. N. Y. State J. Med., Nov. 1, 1943.

Psychiatric Problems of a German Concentration Camp. Editorial, J.A.M.A., Feb. 5, 1944.

Comparison of Recreational Activities of Dementia Praecox Veterans of World War One and World War Two. JOHN EISELE DAVIS. Occup. Therapy and Rehab., Dec. 1943.

Occupational Therapy

The Challenge to Occupational Therapy. WALTER E. BARTON, Major, M.C., A.U.S. Occup. Therapy and Rehab., Dec. 1943.

Occupational Therapy and the Kenny Method. CAROLINE GOSS THOMPSON. Occup. Therap and Rehab., Dec. 1943.

Two Problems of Position in Occupational Therapy. MARY S. JONES. Brit. J. Phys. Med. and Industrial Hygiene, Jan.-Feb. 1944.

Orthopedics

Orthopedic Services in South Africa. DILYS WILKINSON. Crippled Child, Feb. 1944.

Physical Fitness

Vitamins and Physical Performance. AUSTIN F. HENSCHEL. J. Lancet, Nov. 1943.

Physical Therapy

Association of Physical Medicine. Brit. Med. J., Nov. 20, 1943.

Physiotherapy in the Middle East. ST. J. D. BUXTON. J. Chart. Soc. Physiotherapy, Feb. 1944.

Physical Therapy in Medical Education. EBEN J. CAREY, M.D. Arch. P. T., Feb. 1944.

Physical Therapy Department

Organization, Management and Operation of a Navy Physical Therapy Department. LT. COMDR. LOUIS B. NEWMAN, (M.C.), U.S.N.R. Arch. P. T., Feb. 1944.

Rehabilitation

Rehabilitation of Injured Workers in Small Plants. EDWARD C. HOLMBLAD, M.D. Arch. P. T., Feb. 1944.

The Use of the Convalescent Ward in the Rehabilitation and Disposition of Disabled Soldiers. MAJOR ORA L. HUDDLESTON, M.C., A.U.S. Arch. P. T., Feb. 1944.

Rehabilitation: Opportunities for Psychotherapy in Physical Therapy. ALFRED P. SOLOMON, M.D. Occup. Therapy and Rehab., Dec. 1943.

Printing as a Rehabilitation Subject for Sick or Disabled Soldiers. F. K. PHILLIPS. Occup. Therapy and Rehab., Dec. 1943.

Rehabilitation Treatment of Peptic Ulcers. J. BARNES BROWNE. J. Chart. Soc. Physiotherapy, Feb. 1944.

Healthy Attitudes Toward War Injuries. Public Health Nursing, Feb. 1944.

Tuberculosis

Fluorescence Microscopy of Mycobacterium Tuberculosis. CLARENCE F. GRAHAM. Amer. Rev. Tuberculosis, Dec. 1943.

Demonstration of Tubercle Bacilli by Fluorescence Microscopy. DAVID G. FREIMAN AND GERTRUDE F. MOKOTOFF. Amer. Rev. Tuberculosis, Dec. 1943.

ABSTRACTS

John S. Coulter, M.D.

Physics and the Surgeon

H. S. Souttar, C.B.E., D.M., M.Ch., F.R.C.S. Surgeon to the London Hospital. In BRITISH MEDICAL JOURNAL, 4327:740, December 11, 1943.

It has been customary to choose as a subject for the Bradshaw Lecture some aspect of surgery which has interested the speaker for much of his life, which is of general interest to his colleagues in the art of surgery, and which is not without interest to the layman. In choosing as my subject "Physics in Relation to Surgery" I have entirely satisfied the first condition, and I hope to satisfy the other two. It is of course a vast subject, and I can only touch on a few of its fields; of these I have chosen force, heat, and radiation as branches of physics which affect the surgeon most closely and which he is constantly turning to his own use. But even in these I must limit myself to a few problems with which I have met in surgical work and upon which some knowledge of physical principles has thrown light, sometimes revealing important features that would otherwise have been missed.

I have ranged over a very wide field and yet I feel that I have only touched the fringes of my subject. I hope that I have convinced you that there are many points at which the work of the surgeon enters the field of physics and that towards the solution of many of the problems of surgery the physicist could give invaluable help. I trust that the future may see a fuller collaboration between two branches of science which at first seem to have little in common and that each may gain from the experience which the other brings.

Physical Therapy in War Times

Kristian G. Hansson, M.D., New York, N. Y. In ARCHIVES OF PHYSICAL THERAPY, 24:10:585, October 1943.

A discussion of physical therapy in war times must include both world wars, the rehabilitation after the war and our care of civilian patients.

A review of the accomplishments in physical therapy from 1919 to 1939 can be summarized as follows:

1. The establishment of a Council of Physical Therapy of the American Medical Association in 1925. This Council controls the ethical development of physical therapy as a part of organized medicine. It accepts or rejects new apparatus and is helpful in physical therapy education and research.

2. The American Congress of Physical Therapy was started in 1921. It counts among its members most of the physicians in the United States who are interested in physicial therapy in all its aspects. By means of annual conventions with scientific programs, commercial exhibits and seminars, a healthy development is secured. The educational program of technicans owes much to the Registry Board of the Congress. Through its monthly publication—the ARCHIVES OF PHYSICAL THERAPY—it influences the medical literature of today.

3. The American Physiotherapy Association is the national organization of physical therapy technicians. It is a dynamic force, safeguarding the interests of technicians, conservative in its ethics and progressive in its development. The Association's publication, THE PHYSIOTHERAPY REVIEW, is an excellent technical journal.

Thanks to these organizations, we were better prepared to meet the demand when the second world war started.

The Surgeon General laid down certain rules about medical officers in charge of the physical therapy department in each general hospital with at least six aides. These aides were commissioned by act of Congress in February 1943. In a letter from the Surgeon General's office on Aug. 3, 1943, there appears the following statement: "General and larger station hospitals in the continental United States will be provided with gymnasium apparatus, standard equipment for electrotherapy, hydrotherapy and thermotherapy and equipment for research."

The opinion in the Army about physical therapy is expressed in a letter from the surgical consultant of the 8th service command: "It is my opinion from close observation of the work of the physcial therapy departments in all of the hospitals of this service command that they are satisfactorily filling an essential need and materially reducing the period of disability and increasing the completeness with which function is restored; that the qualifications of the physical therapy aides are, in general, of a high order; that the steady return to this country of battle casualties in increasing numbers will constitute a need for more well trained physical therapy aides and that this need will continue for a long time.

"I believe it is safe to say that physical therapy is well established in both Army and Navy hospitals and that more trained personnel and equipment are needed. No new treatments have been evolved that we are not familiar with in the civilian hospitals. Fever treatments are extensively used for gonorrheal infections and cerebral syphilis."

Rehabilitation

In addition to our care of immediate war casualties, we must also prepare for a rehabilitation program. This is the planned attempt, through the use of all recognized measures, under skilled direction, to restore those persons who, because of disabilities, do not assume to the greatest possible extent and at the earliest possible time that place in the production stream of society which they are potentially capable of assuming. A Council of Rehabilitation has been formed by 38 organizations interested in this undertaking. Physical therapy plays an important part in this program.

Conclusion

What effect will the war have on physical therapy? We shall have great numbers of men who have been receiving physical therapy in the armed forces. They will expect the same efficiency when they return to civilian life. The number of medical officers trained in physical therapy will be greatly increased, and many of them will continue in physical therapy after the war. Thousands of physical therapy aides will be available when the war ends, some well trained and some only partially trained.

These are only a few of the problems that offer a challenge to the American Congress of Physical Therapy. I propose that we start now to consider these future problems, so that we shall be prepared to meet them when peace has come.

Some Impressions of Physical and Occupational Therapy in Middle and Far West Universities

Dr. Ernest J. Jaqua. In ARCHIVES OF PHYSICAL THERAPY, 24:10:586, October 1943.

Hearty cooperation between the liberal arts and medical faculties is essential for complete success of a program of training in these fields. Whenever possible the two courses of study should be under joint administration since the first year of technical training can be practically identical. There is much overlapping in actual operation.

The general supervision of the training program can best be entrusted to the medical school, since all courses of study must be approved by the American Medical Association, or to a joint committee of the medical and arts faculties, the former providing the chairman. It is important to recognize the dominant medical implications from the outset.

Americans have a strange incapacity for predicting and planning emergencies. They wait until a crisis is on them, depending on their ingenuity and amazing resources to pull them through. In the words of a famous President, Americans do not learn by experience, they learn by catastrophe.

Perhaps the deepest impression gained from this survey of physical and occupational therapy schools is one of admiration for the splendid pioneer work of the older schools in the face of half hearted appreciation and support by the medical profession generally, and only the vaguest knowledge of their importance on the part of the lay public. The first approved schools have steadily raised their professional standing, extending the range and quality of their courses of study (especially in medical subjects) and proved beyond all doubt the indispensable nature of their services to the medical profession. Indeed, thoughtful observers are deeply convinced, and the war will drive home this point with increasing poignancy, that the medical school or hospital which does not now take active measures to provide these services will some day be awakened to the fact that certain features of the magnificent procession of health have moved past while they were unaware of their presence or unmindful of their significance.

The Galvanic Bath

Harry Tevel Zankel, Brooklyn, New York. In MEDICAL RECORD, 156:11:672, November 1943.

Introduction

While the subject of hydroelectric baths in general, and of galvanic baths in particular, is old, comparatively little has been done to find out just what happens when the human body is placed in such media. Consequently, although numerous indications have been built up for these treatments, at least by a few practitioners, the vast majority of our profession is utterly unfamiliar with them, or else decry their value.

It is the aim of this article to direct the attention of the medical profession to this form of treatment, and to indicate, if possible, some of its uses.

Summary

1. The galvanic bath is of value to the physician and seems particularly indicated in the management of rheumatic conditions, neuromuscular weakness and paralysis, especially where there is multiple involvement, and general fatigue, due to overstrain.

2. The effects of the general galvanic bath may be attributed to its intensification of the action of the hot water, both as to the degree and the duration, as well as to the direct and reflex action of the current upon the tissues and to the chemical changes produced within the body.

3. The general galvanic bath has not been used extensively, perhaps because the apparatus and technics available were not conducive to the production of clinical results commensurate with the effort that had to be expended. This defect has been remedied by the introduction of a simplified technic which, with the apparatus now available, allows the efficient administration of these baths, not only in the office but even at the patient's home.

4. With our country at war, and with the possible limitation of high frequency currents on account of radio interference, it becomes even more essential for those of us who may be asked to treat war injuries seriously to consider whether galvanic treatments may not be of definite help in the early and optimum rehabilitation of those suffering from injury or disease.

5. A new modality is described in the form of the galvanic shower, in the hope that an attempt will be made to determine its value in the toning up of athletes as well as members of our armed forces.

Amputation With Refrigeration Anesthesia

Francis M. Massie, M.D., Lexington, Kentucky. In SOUTHERN MEDICAL JOURNAL, 37:1:5, January 1944.

The numbing effect of cold has been known for centuries, but only in the past ten or twelve years have any serious studies been made of the effect of lowered temperatures on human sensation. The practical results growing from these studies have been life-saving and dramatic. They encourage us to believe that much more is soon to follow, especially in the field of "war" surgery where trauma, shock, and infection contribute so largely to disability and death. The ice pack is replacing the hot pack in the treatment of acute fulminating infections of the extremities as it has already replaced heat in the treatment of lesions due to peripheral vascular disease.

Summary

(1) With refrigeration, not freezing, tourniquets may safely be left on for many hours.

(2) Anesthesia produced by the combination of tourniquet and low temperature of the ice pack is complete.

(3) There is no shock during or following the amputation.

(4) Infection is completely controlled in the post-amputation stumps by continued cold packs, though there is experimental evidence that the tissues may be more susceptible to infection after the temperature is restored to normal.

(5) The experimental and clinical evidence emphasizes again the inexcusable menace of applying heat to any tissue with a reduced and inelastic blood supply.

(6) Traumatic cases reported by other observers point to a brilliant future for the application of cold to anemic and infected tissues.

An analysis of our 14 cases is appended after the manner of Crossman et al.

The Gold Key Award

In ARCHIVES OF PHYSICAL THERAPY, 24:10:610, October 1943.

The annual Gold Key Award which is given to the person who has made the most significant contribution to the field of physical therapy was presented to Dr. John S. Coulter of Chicago by the American Congress of Physical Therapy at its twenty-second annual session in Chicago, September 8 to 11, 1943.

The award was made in recognition of Dr. Coulter's many years of effort for the advancement of physical therapy as a physician, teacher and sponsor of legislation.

Dr. Coulter is professor and chairman of the Department of Physical Therapy at Northwestern University Medical School, chairman of the Council on Physical Therapy at the American Medical Association and is director of the departments of physical therapy at St. Luke's, Illinois Central, Passavant Memorial, Wesley Memorial and Alexian Brothers Hospitals in Chicago. He has recently served as chairman of the Subcommittee on Physical Therapy of the National Research Council. Dr. Coulter has contributed widely to the literature of physical medicine and has been the editor of several textbooks on the subjects which are standard in their field.

Dr. Coulter was born in Philadelphia, September 27, 1885. He is a graduate of the University of Pennsylvania, where he was awarded the Alpha Omega Alpha honorary scholastic medical fraternity key. Dr. Coulter served in the army for ten years after his graduation from medical school, was a first lieutenant and then lieutenant colonel in the Surgeon General's Office of the United States Army. He served in France during the war of 1914 to 1918.

After the war he entered the practice of physical medicine in Chicago. In 1926 he became associate professor of physical therapy and subsequently professor and chairman of the Department of Physical Therapy at Northwestern University Medical School. There he initiated training programs in physical medicine for graduate and undergraduate students. He started the first training course for physical therapy technicians and a training course for physicians about 1927.

Dr. Coulter is a member and the treasurer of the American Congress of Physical Therapy. He is a member of the Chicago Society of Internal Medicine, the American College of Surgeons and the Society of Physical Therapy Physicians, and a member of the Rotary Club and the Chicago Athletic Club.

Careful Hospital Program Outlined for Disabled Soldiers, Sailors

In HOSPITAL MANAGEMENT, 56:5:23, November 1943.

The readjustment and happiness of wounded soldiers and sailors with conspicuous physical disfigurements or disabilities or nervous manifestations will depend in large measure on the way their families and friends and the public at large behave toward them. This has been stated by the Office of War Information in a release which also summarized the rehabilitation and employment facilities provided for servicemen disabled in combat.

Hospital Treatment Changes Views

It is only natural that maimed young men should think bitter thoughts, lose their self-confidence. It is the exceptional man who does not.

And yet, in case after case, maimed young men have been freed from their black thoughts and bitterness, and have had their self-confidence restored, by the professional, expert—and difficult—rehabilitation treatment they have received, as soon as possible after injury, in Army and Navy hospitals and in the hospitals of the Veterans' Administration. Disabled merchant seamen are cared for in U. S. Public Health Service Marine Hospitals.

In all these institutions, the restoration of self-confidence, as an aid in the restoration of physical health, is the immediate aim of doctors, nurses, and other personnel.

Therapeutic Ultraviolet and the War

William T. Anderson, Jr., Ph.D., Newark, New Jersey. In ARCHIVES of PHYSICAL THERAPY, 24:10:597, October 1943.

Like all physical therapy modalities, ultraviolet radiations have gone to war. The increased demand for equipment to produce such radiations and the conservation of strategic materials have necessitated limitations, the assignment of new equipment being restricted to the armed services, hospitals and approved war installations.

The importance of keeping the men in the armed services fit or speeding their convalescence is obvious to all. It may be equally important to keep the workers in the factories, mines and shipyards physically and mentally healthy. The soldier and sailor must have the backing of stalwart civilian workers. While these considerations are generally recognized in this country, few firms include ultraviolet baths in their industrial fitness programs. Since this is so, it should be of interest to investigate briefly what, if any, consideration has been given to the inclusion of ultraviolet therapy in the programs of our allies and our enemies.

The Hitler regimen in Germany during their preparatory years for war recognized the importance of good health for Germans. As a part of their health program they advocated the employment of sun lamps and installed many solariums at mines and factories. In the Ruhr district alone there were not less than 60 sun ray clinics.

The British began their preparations for rearmament with due consideration for the health of their workers. Ultraviolet baths under the supervision of a medical officer were recommended in many instances and by 1943 the list of operating installations of quartz lamp solariums read like a "Who's Who" of the British mining and manufacturing industry.

Ultraviolet solariums have been widely used in Russia in the factories. It is claimed that their use has assisted in decreasing absenteeism on account of illness and that a precision worker makes fewer errors and shows less fatigue during periods when he is subjected to light baths than at other times. No reason was given for alleged improvement.

The Nonsurgical Treatment of Calcified Bursitis

Joseph Echtman, New York, N. Y. In MEDICAL RECORD, 156:11:678, November 1943.

During the past few years, a number of articles on bursitis with calcium deposits in the shoulder have appeared in various medical journals. The authors of some of these articles are surgeons, who probably have had good experience in surgery, but, apparently, have a poor knowledge of physical therapy. Nevertheless, these surgeons have applied the latter form of treatment in bursitis. In their failure to produce results, they condemned physical therapy as a useless procedure and cheerfully advocated surgery as the sole relief and cure for this malady.

Management of the acute pain: It is important for the physician to be able to relieve the agonizing pain which the bursitis patient suffers as a result of the acute inflammatory process. This is accomplished by adhering strictly to rule one and by employing ionization with magnesium sulphate. Employing various drugs in my ionization research on many thousands of patients suffering from a variety of disorders, including bursitis, I found that the magnesium ion transfer offers a definite form of treatment for the relief of the most agonizing pain in acute bursitis.

Treatment of the calcium deposits (the chronic stage): As soon as the shoulder is in a position to tolerate sufficient heat, the next step is to start the application of thermal energy in order to cause absorption of the calcium deposits. For this purpose, in accordance with rule two, we employ, for best results, long wave (conventional) diathermy.

The careful observations made in my extensive clinical experience have convinced me of the fact that of all the armamentaria we possess today which are capable of causing absorption of calcium deposits, such as x-ray, static electricity, long wave and short wave diathermy, the most useful one is the long wave (conventional) diathermy. It is specific. It presents the greatest percentage of cures in cases of calcified bursitis. It is, of course, also most useful in the removal of calcium deposits in joints or other pathological conditions, e.g., osteoarthritis.

Adhesions: Do not torture your patient by trying to break up the shoulder adhesions by force. The diathermy (conventional, not short wave) takes care of them at the same time while effecting absorption of the calcium deposits. It is important to emphasize that short waves do not, as a rule, cause absorption of the shoulder adhesions. In some patients diathermy, too, may fail to act on them. In such cases the finest results are accomplished most painlessly by ionization with sodium chloride followed by interrupted sinusoidalization producing about twenty-two rhythmic contractions and relaxations per minute.

Comment: I urge the practitioner, who treats this condition, to employ or recommend physical therapy treatments before surgery or other painful methods are resorted to. The work should, however, be done by one who knows the principles and practice of physical therapy and possesses the necessary experience and skilfullness.

A Hydrogalvanic Apparatus of Improved Type

Richard Kovacs, M.D., New York, N. Y. In ARCHIVES OF PHYSICAL THERAPY, 24:10:598, October 1943.

Hydrogalvanic baths have been comparatively little employed in recent years in physical therapeutic practice in the United States. The efficiency of some of the newer methods of ion transfer, the reaction against the indiscriminate use of diathermy in all types of chronic inflammatory conditions, reawakened interest in the therapeutic use of the galvanic current as a tissue alterant and counterirritant. Concomitantly renewed attention has been paid to hydrogalvanic applications. For the past two years I have employed an improved type of hydrogalvanic apparatus and found it a welcome aid in the management of a number of conditions.

Neurological Treatment in General Practice

H. R. Carter, M.D., Denver. In ROCKY MOUNTAIN MEDICAL JOURNAL, 40:11:734, November 1943.

Syphilis of the Central Nervous System

The time for effective treatment of central nervous system syphillis is before neurological and mental changes take place, while it is still in the asymptomatic stage as manifested only by minor spinal fluid changes.

The arch stone of neurosyphilis treatment is fever therapy supported by arsenicals as tryparsmide or mepharsen, heavy metals as bismuth, and arsphenamine for systemic syphilis. In the middle-age patient a course of heavy metal and arsenicals should precede fever therapy. Mechanical fever is the first choice such as produced by the inductotherm or the hypertherm cabinets.

Apoplexy

Circulation is maintained by heat, small amount of wine or whisky, every two or three hours, nicotinic acid 50 mg. three times a day before meals. Four small meals a day rather than three meals should be given to avoid excess of blood to abdominal viscera. The administration of nicotinic acid will maintain increased cerebral circulation and sometimes act prophylacticly in prevention of further thrombosis. Care of the contracture deformities requires heat, massage, active and passive movements of joints, and part time wearing of splints.

Medical Rehabilitation in the Veterans Administration

C. F. Bayer, M.D., Hines, Illinois. In ARCHIVES OF PHYSICAL THERAPY, 24:12:716, December 1943.

The purpose of this paper is to provide general information as to the facilities of the Veterans Administration that are now available for the treatment of veterans. It will be necessary to discuss a variety of subjects in a brief manner. It may be stated at the outset that all Veterans Administration hospitals have met the standards and received the approval of the American College of Surgeons.

Our hospitals are divided into three general classes, namely, those receiving patients suffering from general medical and surgical diseases, from neuropsychiatric diseases and from tuberculosis. Regulatory instructions and methods of procedure have been adopted so that the administration and conduct of all the hospitals are carried on in a uniform manner. Admission can be authorized only if all legal (entitlement under existing laws) and medical (need of hospital care) requirements are met.

There are at present 93 Veterans Administration facilities with a total standard bed capacity of 61,800 beds. Thirteen of these facilities, with a total bed capacity of 5,695, are devoted to the treatment of veterans suffering from tuberculosis. Twenty-nine facilities, with a total bed capacity of 33,824, are devoted to the treatment of neuropsychiatric diseases. Fifty-one facilities, with a total bed capacity of 22,281, are devoted to the care of patients suffering from general medical and surgical conditions. Each of these facilities is equipped to furnish outpatient examinations and treatment to veterans entitled thereto under existing laws. Such examinations may be used to determine the need of treatment, the eligibility for hospital care, compensation or pension, or for government insurance purposes.

Physical Therapy

In the planning and construction of new hospitals the physical therapy department receives the same consideration as to allocation of space as other departments. It is usually located in space convenient for both outpatient and inpatient departments. Each Veterans Administration hospital has a physical therapy department under the supervision of a physician and a chief technician.

During the month of June 1943 approximately 259 physical therapy technicians were employed by the Veterans Administration and furnished treatment of 10,552 patients.

Occupational Therapy

All tuberculosis and neuropsychiatric and many general medical facilities where there is a large group of patients with chronic diseases requiring long continued treatment are equipped for the furnishing of occupational therapy. The number and variety of projects depend on the type of hospital. The method of prescribing occupational therapy is similar to that used for physical therapy. Approximately 224 occupational therapy aides are employed by the Veterans Administration.

The Mechanism of Valgus Foot Strain

E. J. Crisp, M.B. In PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE, 36:11:607, September 1943.

Until the mechanism producing valgus foot strain is better understood treatment will remain unsatisfactory, and the invariable prescription of foot class exercises and faradic foot baths lead to many disappointments.

In its early stages valgus strain, occurring in a normal foot, is easy to remedy, but when it becomes complicated by failure of the normal toe function, restoration becomes extremely difficult.

The primary cause of valgus strain is fatigue of the tibialis anticus. This highly important muscle supports the long arch during weight-bearing and progression, and holds the foot dorsiflexed when it is off the ground as in stepping forward. In its former action it is assisted by the tibialis posticus and in the latter by the extensor digitorum longus.

Among the contributory factors responsible for its breakdown are faulty posture, adolescence, overweight, and in the Army, heavy boots and long route marches. Failure of the muscle leads to flattening of the long arch during activity, though when off the ground the foot is still supported and dorsiflexed by the extensor digitorum longus.

Pain results from stretching of the plantar fascia. Rest in bed until this is relieved, followed by correction of posture, reeducation in walking and retraining of the tibialis anticus, will be the only measures necessary.

The Anatomical Basis of Physical Medicine With Special Reference to the Peripheral Nervous System

Professor H. A. Harris, M.D., M.R.C.P. In PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE, 36:6:308, April 1943.

It is unfortunate that physical education and physical medicine still have to be firmly established as sciences and arts devoted to preserving and strengthening the bodily constitution—for it is now years since the philosopher, William Locke, so defined them. Physical medicine must face the task of restoring and maintaining in the injured both self-respect and earning capacity by keeping in view continuously the three prime necessities of fresh food, fresh air and adequate exercise of all the systems of the body.

In view of the recent publication by the Nerve Injuries Committee of the Medical Research Council of an Atlas, "Aids to the Investigation of Peripheral Nerve Injuries," it is worth-while to consider the extent, if any, to which sound scientific work on the cutaneous supply of the skin and the action of muscles has penetrated into practice in the wards of the hospital and in particular to the departments of physical medicine. The grouping of facts to make hypotheses, laws or principles calls for historical perspective. It therefore will be worth-while to trace the origins of our knowledge of the innervation of the skin and muscles of the limbs.

Conclusion

The study of physical medicine requires some acquaintance with the history of the development of our knowledge of the nervous and locomotor systems. The student must be acquainted with such landmarks as were set up by the pioneers—Goodsir, Herringham and Sherrington, among many others. Acquaintance with the hypotheses and conceptions of our predecessors, fallible though many of them be, is a prerequisite to the statement of our present knowledge. This brief survey exemplifies a few of the points relating to the anatomy of the peripheral nervous system. It is as yet impossible to state the part played by nature and that played by physical medicine in healing injury and disease of the nervous system.

Summary

A description is given of some of the historical aspects of our present knowledge of the peripheral nervous system with special reference to the significance of the segmental nerve, the innervation of the skin of the limbs, the morphology of the brachial and lumbosacral plexus, and the clinical importance of the ventral and dorsal axial lines.

The segmental innervation of the muscles of the limb is discussed, in particular muscles with a double nerve supply and the intrinsic muscles of the fingers and thumb.

The 6th cranial, 1st thoracic and 4th lumbar nerves are peculiarly susceptible to hazards.

Electric Shock Therapy, Its Indications and Use

Joseph G. Rushton, M.D. and John A. Aita, M.D., Rochester, Minn. In THE ARCHIVES OF PHYSICAL THERAPY, 24:12:719, December 1943.

The purpose of this paper is to give a brief account of the technic and character of electric shock therapy as employed at the Mayo Clinic, with a consideration of some of the complications. In addition the indications and contraindications will be mentioned.

The machine used to produce electric shock at the clinic was constructed under the direction of Dr. E. J. Baldes and Richard Jones, of the Division of Biophysics. It utilizes the ordinary 110 volt, 60 cycle, alternating current and includes two circuits, one for estimating the resistance of the patient to the alternating current and the other for delivering a calculated shock dose. The amperage can be varied from 250 to 700 milliamperes. The time element is governed by a roentgen ray timer graduated into intervals of 0.1 second from 0 to 1.0 second and into intervals of 0.25 second from 1.0 to 14 seconds. There are three dials: (1) for controlling the timer, (2) for controlling amperage and (3) for compensating for the resistance of the patient.

Electric shock treatment is given three times a week. As a rule six to ten treatments are sufficient. If no improvement has occurred at the end of this time, it is doubtful whether further treatment will be beneficial. Kalinowsky and Worthing, however, urged that at least twenty treatments be given to schizophrenic patients. It is usually well to give two or three treatments after improvement begins in order to forestall a relapse. If relapses occur, they should be treated as soon as they become obvious. An abortive shock does not constitute satisfactory treatment.

Some advantages of electric shock therapy as contrasted with other types of shock therapy are (1) less discomfort and fear because of the immediate loss of consciousness, (2) fewer serious complications, (3) greater ease of administration and (4) greater willingness of the patients to cooperate because of the other advantages listed.

Contraindications have been listed as cerebral lesions, tuberculosis, advanced heart disease, disease of bone (except osteoarthritis), malignant tumors, inanition, thrombophlebitis and glaucoma. That these contraindications should not be considered absolute is indicated by the paper of Evans and the observations of others. The danger from exaggeration of preexisting physical disabilities or production of new ones must be balanced against the severity of the psychosis and its possible evil effects.

March Fracture of the Metatarsals

CORRESPONDENCE, BRITISH MEDICAL JOURNAL, 794, December 18, 1943.

Sir—All who have fresh evidence about obscure conditions should publish the facts. It is more important that what is written should be strictly accurate as to facts and up-to-date as to information and views published by others. In both respects Fl. Lieut. Barns's article on march fracture of the metatarsals (Nov. 13, p. 608) leaves much to be desired. This letter is intended to correct some mistakes and misconceptions which appear to have arisen.

In short, people suffer from march fractures because the structure—the architecture—of their feet is wrong, and not because of any unusual external factor. The only part that external factors play is the same as applies to any mechanical structure. A bridge designed to carry 5 tons is more likely to give way when 10 tons go over it than one strong enough to support 10 tons.

I have made this letter long and strong because we have reached a stage in the knowledge of the behavior of the foot when we can no longer be content to impede the diffusion of knowledge by accepting without protest articles which ignore facts accumulated by other workers—I am,

W. Sayle Creer, Manchester.

The Eccentricity of Standing and Its Cause

F. A. Hellebrandt, Bette G. Nelson and Eleanor M. Larsen. In THE AMERICAN JOURNAL OF PHYSIOLOGY, 140:2:210, November 1943.

The early investigators in the field of animal mechanics assumed that in the well-formed individual the vertical projection of the center of gravity of the body as a whole must lie in the midsagittal plane (Schafer, 1900). Thus the human body in the normal Stellung of Braune and Fischer (1890) was represented as passively poised over the ankle joint in a strictly symmetrical posture. Although it is well recognized that gravity is the chief deforming force affecting the vertical alignment of man, the magnitude and disposition of the gravitational rotatory stresses have been little studied, and direct experimental confirmation of the symmetry of standing is difficult to find. We have observed that the vertical projection of the center of gravity tends to fall slightly to the left and behind the geometric center of the total supporting base (Hellebrandt and Braun, 1939; Hellebrandt and Fries, 1942). This posterosinistral stance eccentricity occurs with sufficient frequency to suggest that the deviation may have biological significance. We found it to be characteristic of about 80 per cent of the subjects thus far studied.

A series of experiments designed to yield quantitative estimates of right and left-sided differences in size, strength and limb preference were performed on a small group of young adult women in an effort to elucidate the mechanism of the slight posterosinistral eccentricity of the vertical projection of the center of gravity of the body as a whole which characterizes the upright stance of 80 per cent of normal subjects. The evidence substantiates the following conclusions:

1. Morphologic and functional asymmetries occur in limb preference, volume and strength.

2. Although most of the observed asymmetries are too small to have statistical significance they constantly favor the right side.

3. It is suggested that in the aggregate these small dextral asymmetries in functional capacity associated with like differences in strength and size have the effect of a slightly eccentric counterweight on the incessantly shifting rotatory moments acting on the joints of the weight-bearing skeletal parts. The autonomous equilibrating muscular contractions called forth overcompensate for the force of this eccentric weight and the anteriorly unbalanced position of the leg by an amount great enough to result in a slight eccentricity in the location of the mean vertical projection of the center of weight in a position contralateral to the sum of the unequal stresses.

Desert Sores

Correspondence—BRITISH MEDICAL JOURNAL, 590, November 6, 1943.

Sir—The article by Dr. J. M. Henderson (May 29, p. 657) on the relationship of sunlight to desert sores prompts me to put forward a possible aspect of this relationship which has exercised my mind for some time.

The effect of the ultraviolet rays of the sun in decreasing the polymorphs, increasing the lymphocytes, and causing a "shift to the left" in the polymorph nuclei, has been shown by several workers. Shaw (1936) demonstrated the latter in Egypt and Kennedy (1935) in Iraq. Pellicciotta (1939) found neutrophilopenia and lymphocytosis with a shift to the left among white residents in Africa. Stammers (1933) says: "It is an established fact that ultraviolet irradiation leads to lymphocytosis." Does it not seem probable, then, that a neutrophilopenia due to solar irradiation, further increased in many instances by the common custom among the troops of sun-bathing, may underlie the reduced resistance to infection of some trivial injury? It is interesting to note that Corkill (1939) in the Sudan recorded a relation between increased insolation and increased incidence of cerebrospinal meningitis. Although he postulated a vitamin deficiency as the connecting link, I feel that diminution in the polymorphs might have something to do with it.

As regards the treatment of desert sores, I should like to suggest the application of a wad of gauze soaked in sterile peptone broth as used in the bacteriology laboratory. Applied night and morning for a week or two it often works wonders in cleaning up dirty ulcers and promoting healing. Its efficacy makes me wonder whether the so-called "ultra-virus" preparations may not owe their action not so much to the products of bacterial growth as to the peptone broth which forms their basis. In some cases, after initial improvement an ulcer will again become "indolent," in spite of continued use of the broth. This accords with the experience of Rapport (1942), who, from his experience of treating desert sores, found that it was not advisable to persevere for longer than two weeks with any particular treatment, as the sores tended to acquire a tolerance to it. How the broth acts I do not know; possibly peptone water, or meat extract, or even saline dressings would work equally well. I have not access to sufficient cases to determine the question.

B. R. Sandiford, The Public Health Laboratories, Cairo.

Physical Therapy in Peripheral Nerve Injuries

Richard Kovacs, M.D., New York City. In ARCHIVES OF PHYSICAL THERAPY, 24:12:732, December 1943.

The author's experience in treating nerve injuries is chiefly derived from his early work at the Reconstruction Hospital following World War I. In three successive years the number of peripheral nerve injuries seen there was as follows: 119 in 1921, 90 in 1922, and 60 in 1923. In contrast, the average yearly number of cases seen in the recent fifteen-year period at the New York Polyclinic Hospital was from 30 to 40.

1. The importance of the proper diagnosis and care of peripheral nerve injuries is shown by the fact that their number in World War I amounted to 5 per cent of the total casualties and to almost one-fifth of all traumatism to the extremities.

2. Operative procedures in nerve injury make it possible for nerves to regenerate, but they will not serve to restore function. As long as there is end-to-end apposition of nerve endings, there is a spontaneous tendency for recovery in nerve injuries.

3. In all nerve injuries early institution and systematic, skillful application of physical measures are essential for maintaining nutrition and function in all affected parts. These measures comprise in early stages, splinting, thermal measures, electric muscle stimulation, massage, and passive movements; in the later stages, active exercise and occupational therapy.

4. Electrodiagnosis furnishes an indispensable aid in the diagnosis and recording of progress in nerve injuries and in differentiation of malingering or functional paralysis.

Pressure Palsy in the Paralyzed Limb

Walpole Lewin, M. S. Lond., F.R.C.S., Lieutenant R.A.M.C. In THE LANCET, 25:2:758, December 18, 1943.

For a long time surgeons have known that the lateral popliteal nerve is vulnerable as it winds around the neck of the fibula to gain the anterior aspect of the leg, and that it may be damaged by local pressure even when this is maintained for relatively short periods.

Attention has been drawn to the relative commonness in paralyzed limbs of lateral popliteal palsies, due to pressure.

Five cases are recorded.

Clinically it is often impossible to differentiate these palsies, but electromyography and the sweating test clearly demonstrates them. It is stressed that all who have the nursing care of such patients, particularly in their transport, should be fully aware of the condition and prevent it by adopting simple prophylactic measures.

In many of these cases, where progress often is to be measured by so little, we must take especial care that in their treatment we do not unwittingly add to their disability.

I wish to thank Dr. L. Guttmann and Captain G. Weddell, R.A.M.C., who were responsible for the sweating tests and electromyograms respectively; Brigadier Hugh Cairns for his advice and encouragement in the preparation of this paper; and Lieut.-Col. G. O. Chambers, R.A.M.C., my commanding officer, for permission to publish these cases.

Importance of Rest, Exercise and Dietary Regulation in the Spa Regimen

M. B. Jarman, M.D., Hot Springs, Va. In JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 123:10:633, November 6, 1943.

It is difficult to write a readable article about the obvious. Remove the three items mentioned in the title from a regimen and there remains no regimen either at a spa or at any other institution designed to preserve or promote health.

A spa is an institution, built around a "mineral" spring or group of such springs, so equipped and staffed as to utilize the waters from these springs in conjunction with other therapeutic agencies for health purposes.

In general, patrons of spas consist of middle aged and elderly persons who are normal in health and want to remain so, and persons of the same age groups who are suffering from certain of the chronic diseases or convalescing from surgical operations or acute diseases.

Rest and exercise as applied to these groups in the spa regimen will be discussed together because, except for certain special exercises such as corrective exercises, and certain forms of local rest such as that obtained by splints or collapse therapy, rest and exercise are simply different degrees of the same thing—just like heat and cold. Absolute rest is analogous to absolute zero temperature and just about as difficult to attain.

For those normal persons who make up 10 to 20 per cent of spa patrons the importance of the proper balance of rest and exercise is admitted.

At a spa, exercise for the normal person is usually chosen from the great variety of "sport activities" available—walking on measured, scenic walking trails, golf, tennis, swimming, horseback riding, badminton or other outdoor sports. The kind and amount of such exercise determined on can be fitted easily into the patient's regimen. The degree of medical supervision of this exercise varies greatly from none at all at some spas to that conforming to a systematic program at others.

Rest and Exercise for Arthritic Patients.—Approximately 1 patient in 4 who seeks treatment at spas is a victim of one of several maladies, often grouped under the heading "rheumatic disease." Most of these patients suffer from atrophic or hypertrophic arthritis. Some suffer from the articular manifestations of gout. Victims of tuberculous arthritis, acute infectious arthritis and acute rheumatic fever go to spas only by mistake. For purposes of this article the rarer forms of arthritis may be ignored and the discussion limited to atrophic and hypertrophic arthritis.

Rest and Exercise for Obese Patients.—An undetermined number of patrons of spas seek treatment solely because they are overweight. In my own practice slightly more than 11 per cent belong to this group. In addition to the patients who seek treatment solely because they are overweight there are many others who are actually overweight but who go to spas for other reasons.

I am convinced that the therapeutic measure most frequently advised by physicians is rest. I am convinced also that a thought uppermost in the minds of patients who go to spas—and one about which there is much confusion—centers around matters pertaining to diet.

Management and Care of the Infantile Paralysis Patient

Edward L. Compere, M.D., Chicago, Illinois. In ARCHIVES OF PHYSICAL THERAPY, 24:12:712, December 1943.

The term "infantile paralysis" is a misnomer. It suggests that the disease is primarily one of infants. The more technical designation, "acute anterior poliomyelitis," is almost equally inaccurate. "Polio," a perfectly satisfactory substitute for the longer name, is a systemic disease and not a localized infection of a portion of the central nervous system. The marked susceptibility of the anterior horn cells in the spinal cord to the virus may result in paralysis of the peripheral muscles. This paralysis may include only one or two muscles or it may be generalized. The distribution is variable and rarely symmetrical.

My own plan of treatment includes some Kenny and some orthodox methods.

Outline of Care for the "Polio" Patient

A. Acute Stage.
   1. Strict contact isolation and quarantine.
   2. Convalescent serum immediately if it is available.
   3. Hot moist packs changed every hour for twelve hours each day.
   4. Respirator at the first indication of cyanosis or dyspnea; continue hot packs with the patient in the respirator.
   5. Gentle passive motion of all extremities at least once a day.

B. Subacute Stage.
   1. Cursory orthopedic examination with minimal manipulation.
   2. Careful positioning with hard mattress and foot board.
   3. Hot pack to hamstrings and spine in all patients in whom there is stiffness of the neck, hamstring muscles or back.
   4. Hot pack to muscles of all extremities in which there is tenderness or evidence of spasm.

5. Prescribe prostigmine bromide; for adults 30 mg. together with 1/100 grain (0.6 mg.) of atropine sulfate three times a day, given simultaneously; children of 12 to 14 years, prostigmine bromide, 20 mg., and atropine sulfate, 1/200 grain, three times a day; younger children, prostigmine bromide, 10 to 15 mg., three times a day without atropine; all given orally.
6. Physical therapy consisting of passive exercises with encouragement of active motion.
7. Correction of incoordination and of mental alienation through the Kenny principle of combined patient and physical therapist concentration and cooperation.
8. Mobilization of the spine by sitting the patient in bed with the knees completely extended; this also lengthens the hamstring muscles if they are tight or shortened.
9. Permit free activity for at least one hour each morning before the hot packs and each afternoon after the hot packs.
10. Early attempts at standing and walking.
11. Continue hot packs and stretching of tight muscles, but not those in spasm, until there is complete flexibility of the spine. In children this should be to the point where they are able to sit on the floor or on a firm mattress with the knees completely extended and bend forward until the head rests on the knees.

C. Chronic Stage.

1. Braces for patients who have foot drop or who have total paralysis of the quadriceps muscle. No braces for the upper arms or spine are being used at the present time. Abdominal support in the form of a corselet has been found to be worth while.
2. Operations such as tendon transplants, when indicated, may be performed within six months after all muscle spasm has disappeared. Arthrodeses for stabilization should be deferred in most instances until at least one year after all muscle spasm has disappeared.
3. The spine must be observed frequently and free mobility maintained. If scoliosis becomes apparent in a child whose longitudinal growth lies mostly in the future, a prophylactic spinal fusion may be in order.

While this program of care cannot cure paralysis, it helps the patient to use to the best possible advantage such muscles as have not been destroyed by the virus action on the spinal cord.

Rehabilitation in Cases of Arthrogryposis Multiplex Congenita

Carl E. Badgley, M.D., Ann Arbor, Michigan. In ARCHIVES OF PHYSICAL THERAPY, 24:12:736, December 1943.

In the discussion of arthrogryposis multiplex congenita I have attempted to present a conception of the pathogenesis of the many deformities and dysfunctions characteristic of this syndrome, which is based on the clinical evidence, substantiated by embryologic experimental data both as to the formation of the normal limb buds and as to the limb buds with partial paralysis. Embryonic arrest of the inherent rotation of the limb buds produced by a primary muscle degeneration, which Middleton classified as similar to muscle dystrophy, seems the most probable explanation to account for all of the characteristic deformities noted in this syndrome.

Recognition of this pathogenesis of arthrogryposis multiplex congenita is of definite aid in the program of therapy for rehabilitation. Correction of the deformities by release operations to reestablish mobility and to continue rotation of the extremities to the normal posture of mature human extremities is the aim of therapy.

The muscle damage is of course irreparable, but marked improvement in function can be obtained.

The characteristic features of this syndrome are so obvious that once they are seen, recognition is certain. Early treatment, with early operative correction of the deformities if necessary, is advised.

Shockless Surgery With Refrigeration Anesthesia

Leonard C. Hallendorf, M.D., and Edwin B. Winnett, M.D., Des Moines. In THE JOURNAL OF IOWA STATE MEDICAL SOCIETY, 34:1:15, January 1944.

Only a few years ago, and even today, many surgeons would hesitate to operate on elderly, poor-risk patients with gangrene of the extremities, because of the high mortality rate involved in this type of surgery. Although radical surgery was the only hope for cure, the mortality rate was often as high as eighty per cent. The thought of having an operation was so demoralizing to the patient of advanced age that this in itself constituted a major factor in the production of a poor prognosis. Today, however, these patients can take new hope for a cure because of refrigeration anesthesia. No longer will the debilitated, diabetic patient with gangrene need to dread an operation which may take his life because of shock, infection, pneumonia, or other postoperative complications. No longer will the surgeon be reluctant to operate on these patients because of the former, inevitably poor results.

Summary

We have presented five cases of amputation with refrigeration anesthesia and for the most part they were very successful. One death occurred, which was caused by cerebral thrombosis that was probably coincidental and not related to the surgery. We have demonstrated to our satisfaction that surgery with refrigeration anesthesia is an effective method in treating gangrene of the extremities in certain elderly, emaciated, poor-risk patients.

Device for Making Hot Packs

Lieut. Colonel D. C. Conzett, Medical Corps, Army of the U. S. In THE BULLETIN OF THE U. S. ARMY MEDICAL DEPT., 70:87, November 1943.

The possibility of admitting cases of acute poliomyelitis focused attention on making plans for the treatment of such cases. Personnel trained in the Kenny method of treatment were available, but facilities for the preparation of the hot packs were not at hand. The accompanying illustrations show how Emil W. Jokinen, technician fourth grade, detachment Medical Department, Fort Riley, Kansas, provided these facilities by using only government-issue material which was already available on the post. This apparatus was so effective that it was immediately put into service in the septic surgery ward. With this aid, hot packs are made easily available for the entire ward.

A Study of Over Two Thousand Cases of Electrofit-Treated Patients

David J. Impastato, M.D., and Renato J. Almansi, M.D., New York City. In NEW YORK STATE JOURNAL OF MEDICINE, 43:21:2063, November 1, 1943.

We introduced electrofit therapy in the United States in February 1940. Since then many thousands have been treated by this method, but only about 4,000 cases have been fully reported in the literature. Of the available cases only 2,377 were found suitable for statistical analysis.

Conclusions

1. Time has been too short for a final evaluation of electrofit therapy. The immediate results have been good. As a form of convulsive therapy it has practically fully displaced metrazol.
2. The electrofit is very effective in the treatment of involutional melancholia and manic-depressive psychosis.
3. It is also effective in the manic phase of manic-depressive psychosis.
4. Its efficiency is less pronounced in the schizophrenia psychoses. Here it seems to be less efficient than insulin. However, larger courses of electrofit may lead to a higher rate of recovery in schizophrenics.
5. It is promising in the treatment of psychoneuroses.
6. The technic of the electrofit is still in the evolutionary stage.
7. The fracture rate of the electrofit (1.1 to 2.9 per cent) is less than that for metrazol (3.9 per cent).
8. Methods to reduce the fracture rate are still being tried out. Curare seems to have some disadvantages. Magnesium sulfate and sodium amytal are promising.
9. The death rate is extremely low (0.06 per cent).
10. Electrofit therapy is a safe method of treatment and should be continued until more effective methods are discovered.

Demonstration of Apparatus for Self-Activated Exercises in the Early Rehabilitation of the Sick and Injured

O. F. Guthrie Smith, M.B.E., C.S.M.M.G. In PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE, 36:11:610, September 1943.

As there is considerable confusion of thought between reeducation of function, remedial exercises and rehabilitation, it seems desirable to review the use of these terms before proceeding to describe the apparatus.

In the early stages of the reeducation of function the patient may require help either in the form of manual assistance by a physical therapist or simple aids such as suspension-slings and pulleys. Such assistance calls for precise technic in order to localize the effort to the weak muscles and to upgrade the strength of exercise as function improves.

The Swedish system of remedial exercises is characterized by manual assistance or resistance in which the operator works on the patient rather than by teaching the patient to help himself; but this type of manual and individual treatment cannot be sustained for sufficiently long periods nor can it provide the tempo necessary to make a patient fit for strenuous occupations.

In rehabilitation the function of the physical therapist is to teach the patient to carry out his own exercises, to understand the purpose of the work and to cooperate by stimulating mental as well as physical effort. To this end apparatus has been designed which is activated by the efforts of the patient or a group of patients working together, while suspension-slings and springs are employed to localize the muscle work and to give a predetermined degree of assistance or resistance; effort and rest periods alternate in rhythm.

The apparatus consists of a steel frame which can be used in a department, ward or in the open air and may be regarded as a portable gymnasium. Steel springs graded by poundage from 10 to 50 lb. are used to provide "variable" resistance while slings permit of the suspension of the whole body or of one limb as required. The apparatus permits also of rope and pulley and weight "fixed" resistance exercises when desired. The advantages of the apparatus for obtaining self-activated exercises are that it provides a comfortable support and the patient is not afraid of movement; friction and the pull of gravity are eliminated. It permits of relaxation followed by "weightless" and rhythmical exercises. As function improves resistance is added and the patient's effort can be sustained for any desired period, until strong muscle work is achieved.

The clinical application of the apparatus may be illustrated by examples. In spastic paralysis excellent relaxation is obtained as a preliminary to reeducation; in flaccid paralysis muscle work can be localized to the affected muscles and contraction of the antagonists eliminated. Progressive movement in painful arthritis or after injury can be obtained with a minimum of muscle work and with the patient confident that movement is under his own control. In orthopedic cases weight and counterweight of the body itself are used to apply corrective force in deformities; mobility of joints can be maintained after manipulation and, by means of spring resistance, very strong muscle strengthening or "eutonic" exercises are obtained.

(Eutonic is a name given to distinguish spring-resistance exercises from other forms of resistance.)

High Altitude Frostbite

Loyal Davis, M.D., F.A.C.S., Colonel, M.C., A.U.S., Chicago, Ill. (et al.) In SURGERY, GYNECOLOGY AND OBSTETRICS, 77:6:575, December 1943.

Cold damage to the extremities suffered by the high altitude airman is unique among injuries of thermal origin. It differs from the common frostbite as greatly as the "Bird's Eye" frozen foods differ from cold storage foods. One fundamental fact is common to these injuries, to the frostbite incurred by ground troops during severe winter weather, and the immersion foot of shipwrecked seamen; namely, that the primary agent which produces the pathologic changes in the affected tissues is cold.

Greene has recommended that the frostbitten extremity be kept at a temperature approximately plus 2 to plus 5 degrees centigrade, because in his opinion (1) heat to the frozen part increases its metabolism and its oxygen requirements and encourages the growth of bacteria and (2) because warmth increases the flow of blood to the part, resulting in greater transudation and blistering. Greene cites Lake's work which showed that the survival rate of tissue cultures is greatest between minus 5 degrees centigrade and plus 5 degrees centigrade.

In an effort to evaluate Greene's recommendations for treatment by continued cooling, we have treated a series of cases by keeping the damaged parts at controlled temperatures approximating those advised by Greene for periods ranging from 24 to 48 hours, after the injury had been sustained. Simultaneously, we have treated a second series of cases by exposing the damaged parts to room temperature, thus allowing a spontaneous re-

filling of the capillary beds at a natural rate and to a normal degree without attempting to interfere with natural physiological reparative processes. In our judgment, the results obtained by this method were equal or better than those obtained by continued cooling. It is our impression that less blistering occurred in those patients treated by cooling but on the other hand, the patients as a group, complained more of pain and required more sedation than those treated by exposure to room temperature and there was ultimately a greater loss of tissue.

Other methods of releasing peripheral vasoconstrictions are (a) by applying heat to the body as a whole, which produces a generalized dilatation of peripheral blood vessels in all extremities and thus produces reflex warming; (b) by the action of drugs (such as amyl nitrate, nitroglycerin, alcohol, the salicylates and papaverine) which affect directly the musculature of the blood vessel walls; (c) by the action of drugs which act primarily upon the blood vessel walls through the medium of the sympathetic motor fibers (nicotenic acid, mecholin); and (d) injection blocking of either the peripheral nerve or sympathetic nerve trunks.

As previously stated, if any of these measures are to be effective they must be carried out before thrombosis has taken place at the arteriolar-capillary junctions. Optimum results can be anticipated if the defrosting and the release of vasospasm can be accomplished while the airman is still in flight. Chemical methods for producing relaxation would obviously have great advantages over nerve blocking procedures which require exacting surgical skill.

Blind Physical Therapists

In BRITISH MEDICAL JOURNAL, 4327: 755, December 11, 1943.

The school of massage for blind men and women, established by the National Institute for the Blind in 1915, is to be enlarged. It will remain in the same building as the Eichholz Clinic in Great Portland Street, London, where another of the extensive floors is to be added to the school premises. During its career the school has undergone sundry changes, but all have been in the cause of progress. As the only training center in the world exclusively for sightless physical therapists, the Institute has regarded it a point of honor to maintain a high degree of efficiency, a policy that has established the blind masseur as second to none in the profession. One reason for enlarging the school is the proved success of the "educated" blind and the increase in this category brought about by the growing number of young people passing through the National Institute's two public schools, Worcester College for blind boys, and Chorleywood College for Girls with little or no sight. Worcester was much enlarged shortly before the outbreak of war, but already it is filled to capacity; Chorleywood also is nearing the point where more accommodation will be needed for myopic girls eligible for secondary education. Beyond these sources of potential students for the massage school, account must be taken of blinded war casualties in the fighting services and civilian population, among whom are bound to be many persons desirous of, and suitable for, training. A matter to which full attention must be given is the demand of the profession itself. The blind practitioner cannot lag behind the advancing technic, and the curriculum at the school must be adjusted accordingly. The present two-year course puts severe pressure on the students, and a longer course will probably have to be introduced soon. It is to meet the challenge of modern developments and to help more young blind persons of ability that the National Institute has decided to embark on the extension scheme.

New Suction and Compression Device for Circulatory Disturbances

Lester Jankay, M.D., San Bernardino, California. In ARCHIVES OF PHYSICAL THERAPY, 24:12:378, December 1943.

1. A vacuum and compression valve is synchronized with the heart systole and diastole.

2. A light weight linen suit with air-proof lining is put on the patient.

3. The linen suit appliance on the body is inflated, synchronizing with the diastole; it is deflated, synchronizing with the systole.

4. During the systole a vacuum promotes the blood flow to the periphery. During the diastole the compression promotes the return of the blood flow.

Book Reviews

A Method of Anatomy. *By J. C. Boileau Grant, M.C., M.B., Ch.B., Professor of Anatomy in the University of Toronto, Toronto. Second Edition. Cloth. Price, $6. Pp. 794, with 651 illustrations. Baltimore: The Williams and Wilkins Company, 1943.*

The first edition appeared in 1937, and the popularity of this anatomy is shown as this is the third printing of the second edition. In this edition an introductory section on the systems of the body has been added, a hundred new illustrations have been included, and many of the old ones have either been improved or replaced.

This method of anatomy presents anatomy in regions and units. The salient points of structure and function are brought out by 800 clear line drawings. It correlates facts and presents them in their mutual relationships.

This book can be recommended to students because it makes the acquisition of facts an easier task and to physicians as a working instrument for application in practice.

An Atlas of Anatomy. *By J. C. Boileau Grant, M.C., M.B., Ch.B., Professor of Anatomy in the University of Toronto, Toronto. Volume I: Upper Limb, Abdomen, Perineum, Pelvis and Lower Limb. Cloth. Price, $5. Pp. 214, with 227 illustrations. Volume II: Vertebrae, the Vertebral Column, Thorax, Head and Neck. Cloth. Pp. 199, with 232 illustrations. Price, $5. Baltimore: The Williams and Wilkins Company, 1943.*

This Atlas presents anatomy by regions, making it useful to clinical workers. The illustrations are excellent. The drawings are by Mrs. Dorothy I. Chubb, a pupil of the late Max Broedel. Color plates predominate and a large number are in three or four colors. Clear labeling leaves no doubt as to what is shown, and accuracy of the plates is established by photographic means. There are accompanying short demonstrations emphasizing points of significance. An index leads quickly to the plates in which any structure is shown.

The atlas is good, it is not expensive and it is highly recommended to students.

Kinetic Bandaging, Including Splints and Protective Dressings. *By Seymour W. Meyer, B.S., M.S., M.D., Assistant in Surgical Anatomy, Long Island College of Medicine, and Lecturer at Cumberland Hospital Training School, Brooklyn, N. Y. Cloth. Price, $3.50. Pp. 310, with 540 illustrations. Philadelphia: F. A. Davis Company, 1943.*

"Kinetic Bandaging" is the flowing and ready movement of a bandage from one region to another, until any or all parts of the body surface are covered, without the necessity of memorizing a multiplicity of individual bandages. Under this modern approach to bandaging, all former, laborious, cumbersome and complicated methods may be discarded.

The concept of the human body as a composite of but three geometric parts—ovoids, cylinders and truncated cones—brings a new simplicity to the subject of bandaging. A few fundamental principles are all that are involved when bandages are applied to these three basic figures. By acquiring skill in the application of dressings to these elemental units of structure, the student is able freely to move from one part of the body to another, applying regional bandages with the utmost simplicity, dexterity and ease.

The author states that credit for the initiation of this volume must be given to Commander Edward M. Livingston of the United States Navy, formerly Assistant Professor of Surgery at the New York University Medical College and Associate Visiting Surgeon at the Memorial Hospital, New York City, who a decade ago contributed an article on the subject of "Bandaging" to the "Cyclopedia of Medicine." At the suggestion of Doctor Livingston the project of this book was assigned to the author, a former student and research associate. Bandages are used for a variety of purposes, the most important of which are: (1) to protect injured areas; (2) to hold dressings and splints in place; (3) to exert pressure; (4) to support parts of the body; (5) to restrict or limit motion; and (6) to deplete a part of the body of its blood supply.

This method of approach should create a new interest in a sadly-neglected art. This volume is highly recommended to the Medical Departments of our Armed Forces, Red Cross workers, general practitioners, internes, medical students, physical therapists and nurses.

Proteins, Amino Acids and Peptides as Ions and Dipolar Ions. *By Edwin J. Cohn and John T. Edsall, Harvard Medical School. Including chapters by John G. Kirkwood, Cornell University; Hans Mueller, Massachusetts Institute of Technology; J. L. Oncley, Harvard Medical School and Massachusetts Institute of Technology; and George Scatchard, Massachusetts Institute of Technology. Cloth. Price, $13.50. Pp 696. New York: Reinhold Publishing Corporation, 1943.*

This book discusses the characteristics of amino acids, peptides and proteins. Evidence is presented as to the size and shape of these molecules as well as the number and distribution of the electrical charges which they bear. During the past twenty-five years a revolution has occurred in the study of protein chemistry. By new technics, such as osmotic pressure measurements and the use of the ultra-centrifuge, the size of very large molecules have been determined with a fair degree of accuracy. The work of Debye and Hückel and of Bjerrum published in 1923 made it apparent that the study of dipolar ions (Zwitter ions) and of interionic forces must be of great importance for the understanding of protein molecules. The first part of this monograph deals entirely with the simpler molecules, while part two deals with proteins. The structural pattern of the protein molecule still is to be discovered.

The authors have produced a monograph that stands in a field by itself and is written not only for the biological chemist—whom it will interest most—but also for research workers in other fields to which such chemistry is related. It is not a book written for the general practitioner of medicine, but it should be of value to those physicians who have a broad scientific training and who wish to keep informed of this rapidly advancing science—so closely related to, as well as being, an integral part of medicine. It is only by a thorough study of such a book that the physical therapist can hope to understand how high frequency currents might or might not affect the protein molecules. Effects on protein dipoles already have been claimed as one of the specific effects of short wave diathermy. Therefore, this book should prove of great value to those interested in this field.

The book is divided into two parts. In part one some of the topics discussed are: spectroscopy and dipolar ionic structure; dipolar ions and acid base equilibria; dielectric constants and dipole moments and dipolar ions; and the theoretical interpretation of the properties of dipolar ions. Part two contains in part the structural basis of the protein molecule; x-ray diffraction studies and protein structure; rotary Brownian movement; the electric moments and the relaxation times of proteins as measured from the influence upon the dielectric constants of solutions and the interaction of proteins with ions and dipolar ions. In addition there is an excellent appendix of valuable tables.

Management of the Cocoanut Grove Burns at the Massachusetts General Hospital. *By the following members of the staff: J. C. Aub, M.D.; H. K. Beecher, M.D.; B. Cannon, M.D.; S. Cobb, M.D.; O. Cope, M.D.; N. W. Faxon, M.D.; C. Lyons, M.D.; T. Mallory, M.D.; R. Schatzki, M.D., and their Staff Associates. Cloth. Price, $4. Pp. 171, with 49 illustrations in color and 64 in black and white. Philadelphia: J. B. Lippincott Company, 1943.*

On November 28, 1942, a disastrous fire occurred in the Cocoanut Grove, a Boston night club. Thirty-nine of the 114 patients brought to the Emergency Ward of this hospital survived the initial few minutes and received treatment of their burns. This volume gives the result of this experience: the hospital administration, social service activities, neuropsychiatry, resuscitation and sedation, pathology, blood bank, burn shock, rehabilitation and physical therapy. These burns were treated with no debridement, no cleansing, a bland ointment with protective dressing and internally administered chemotherapy.

"A Note on Physical Therapy" was written by Dr. Arthur L. Watkins. He mentions that the grafts during the first few weeks were sensitive, so that a layer of lanolin was applied. The whirlpool bath at a temperature of approximately 104 F. was then used for a period of 15 to 20 minutes. While in the bath the patients were instructed in exercises. After the thermotherapy, massage of a special type was given. This consisted of gentle circular and longitudinal friction at the junction of the normal and involved areas.

This volume should be read by hospital administrators and by physicians treating burn cases. The article by Doctor Watkins on physical therapy should be read by every physical therapy technician.

Health Instruction Yearbook 1943. *Compiled by Oliver E. Byrd, Ed. D., Associate Professor of Hygiene and Director, Division of Health Education, School of Health, Stanford University. Foreword by Ray Lyman Wilbur, M.D., Chancellor, Stanford University. Cloth. Price, $3. Pp. 308. Stanford University, Calif.; London: Oxford University Press, 1943.*

This is the first of a new and important annual project, the preparation of a yearbook on health instruction. The articles that the author has selected are of value for their teaching purposes and furnish a valuable source of materials for health instruction purposes on both an individual and a group basis.

The following subjects are considered: health as a social accomplishment; health as a social problem; nutrition and health; excretion and health; exercise and body mechanics; fatigue and rest; mental health and disease; heredity and eugenics; infection and immunity; chronic and degenerative disorders; habit forming substances; the care of special organs; safety; health and the physical environment; health services and facilities; family health; school health; occupational health; community health services and trends and probabilities.

Doctor Wilbur in his foreword correctly states: "Health instruction requires up-to-date knowledge. So-called traditions in health care are being outmoded every day. Health has now become a subject of world wide interest and importance. Mistakes made can affect a whole people; knowledge used can help a whole people."

This yearbook is highly recommended to teachers of hygiene, school nurses, school administrators and all others who desire to know of the developments in the field of health.

Backache and Sciatic Neuritis: Back Injuries—Deformities—Disease—Disabilities with notes on the Pelvis, Neck and Brachial Neuritis. *By Philip Lewin, M.D., F.A.C.S., Associate Professor of Bone and Joint Surgery, Northwestern University Medical School, Attending Orthopedic Surgeon, Cook County Hospital, Attending Orthopedic Surgeon, Michael Reese Hospital; Professor of Orthopedic Surgery, Cook County Graduate School of Medicine, Chicago; Lieutenant Colonel, Medical Corps, U. S. Army. Cloth. Price, $10. Pp. 745, with 235 illustrations. Philadelphia: Lea and Febiger, 1943.*

Backache is the bane of the life of every physician. Backache is a symptom—not a diagnosis. This book gives the general practitioner the facts needed in the diagnosis and treatment of backache, sciatica and related conditions. Industrial compensation, medico-legal and military aspects of the subject are considered.

It is emphasized that the diagnosis of back lesions is made from a careful history and complete physical and roentgen-ray examinations. One must differentiate between lesions caused by injury and preexisting conditions which are aggravated by a slight or severe injury. The important unknown quantity in many cases is the preexisting condition of the spine.

This book shows the many pitfalls on the road to diagnosis. In giving their histories many patients forget minor and sometimes major injuries. Roentgenograms may mislead the examiner in the interpretation of arthritic spurs, narrowed interspaces and obliterated intervertebral joint spaces. The author correctly states that the mainstays of diagnosis are muscle spasm which cannot be simulated and the special tests of back, pelvis and legs, the neurological examination and the roentgenograms.

The prognosis in back lesions, it is stated, depends upon the etiological factors, pathological changes, duration of the condition, resistance of the patient, persistence of the treatment, question of financial or other compensation and upon the degree of involvement of the spinal cord and nerve roots. Lewin notes that back injuries may be followed by a train of nervous symptoms which are out of all proportion to the severity of the injury, and litigation or military reclassification makes the problem more complicated.

Throughout the book what should be done for a person with backache is stressed. When the best treatment is undetermined more than one method is described. The value of continuity of tratment is emphasized.

Back injuries, even to normal spines, require a longer period of recovery than injuries to most joints. Two important symptoms of chronic back disturbances are fatigue and pain upon resuming activity after a period of rest. Therefore, there is an excellent chapter on physical therapy in disorders of the back and sciatica.

This book should be in the library of the medical student, the general practitioner, the industrial and military surgeon.

Human Constitution in Clinical Medicine. *By George Draper, M.D., Associate Professor of Clinical Medicine, College of Physicians and Surgeons, Columbia University; Associate Attending Physician, Presbyterian Hospital, New York City, and C. W. Dupertuis, Ph.D., Physical Anthropologist, Constitution Clinic, Presbyterian Hospital, New York City, and J. L. Caughey, Jr., M.D., Med. Sci. D., Associate in Medicine, College of Physicians and Surgeons, Columbia University; Assistant Physician, Presbyterian Hospital, New York City. Cloth. Pp. 273, with 29 illustrations. Price, $4. New York: Paul B. Hoeber, Inc., 1943.*

This book shows that there is an essential relationship between each individual person and the disease from which he or she may suffer. It illuminates the constitutional factor in disease. For example, in morphology, they use a combination of three methods: the anthropometric technic of Martin, the photographic somatotyping technic of Sheldon, and finally an over-all observation and correlation of feature detail and relationship, and of hair, pigment, teeth, and joints. In the physiological panel the electrocardiogram and spirogram have been utilized. In the immunity phase, observations on infantile paralysis and rheumatic fever have been of interest.

In every analysis of a symptom, it is necessary to appraise not only the tissue or organ disturbance that initiates the reaction, but also the patient's communications system and the emotional and intellectual qualities that enter into his interpretation of the things he feels. A patient's reaction to painful stimuli is one of the most variable things in clinical medicine. Another symptom which is difficult for a student to interpret unless he includes a constitutional point of view is fatigue. The complaint may arise as a result of depletion of muscle strength by wasting disease, but even when such disease is present the rate of onset and severity of fatigue are related to the physique and the physiological character of the individual. In some persons fatigue is directly due to the inadequacy of their muscular endowment. One important physiological basis for fatigue appears to be unstable autonomic regulation of body function.

Therefore, most symptoms should make the medical student think of the human constitution, and this book should be read by students of clinical medicine.

Reaction to Injury: Pathology for Students of Disease. *By Wiley D. Forbus, M.D., Professor of Pathology, Duke University and Pathologist to the Duke Hospital. Cloth. Price, $9. Pp. 797, with 532 illustrations. Baltimore: The Williams and Wilkins Company, 1943.*

In this book the author's theme is that disease is a matter of the abnormal outcome of a constantly changing relation between the ultimate biological unit, the cell, and its environment or that disease is a matter of the qualitative and quantitative reaction of an individual to environmental stimulation.

The book begins with a section devoted to the nature and causation of disease. In this section the student is given an opportunity to see that the study of disease is simply a continuation and an integration of the studies which he began long ago. This introduces a new technic of study, projectional, or functional thinking based upon anatomical observation. The student is thus taught to advance his understanding of the environmental relationship, which is the basis of disease.

Forbus in this book presents pathology with the plan that the essential element of disease is considered to be the reaction of the individual or, in the last analysis, the reaction of the individual cells that compose the tissues to agents and influences comprising the environment. The author considers the individual as capable of reacting in only three essential ways: (1) by resisting; (2) by submitting; and (3) by effecting an adaptation. Forbus, therefore, takes these three reactions to be the basis of all disease, and considers the recognized disease entities to be expressions or the elaboration of one of these several reactions.

Only two of the four parts of this work are presented in this first volume—part one is an introduction to the study of disease, and part two is the complete treatment of the resistive reaction to injury. The remaining two parts, one dealing with the submissive type of reaction, and the other with the reaction of adaptation, are in preparation.

This book on reaction to injury is recommended to medical students and to all students of disease as it presents a new selection and arrangement of pathology.

Surgical Errors and Safeguards. *By Max Thorek, M.D., LL.D., D.C.M, F.I.C.S., Professor of Surgery, Cook County Graduate School of Medicine; Attending Surgeon, Cook County Hospital; Surgeon-in-Chief, American Hospital; Consulting Surgeon, Municipal Tuberculosis Sanitarium, Chicago. With a Foreword by Sir Hugh Devine, M.S., Hon. F.R.C.S. (Eng.), F.R.A.C.S. F.A.C.S. (Hon.), Chairman Editorial Committee Australian and New Zealand Journal of Surgery, and a chapter on Legal Responsibility in Surgical Practice by Hubert Winston Smith, A.B., M.B.A., LL.B., M.D., Associate in Medical-Legal Research, Harvard Law School and Harvard Medical School, Boston. Fourth Edition. Cloth. Price, $15. Pp. 1085, with 794 illustrations. Philadelphia: J. B. Lippincott Company, 1943.*

The author states that in contrast to the first edition in 1932 which was brought forth in the main from the author's own observations and, in some instances, failures, this new edition is rather a compendium of the experiences of surgeons throughout the world. In this edition there has been added a chapter on "Errors and Safeguards in Plastic Operations," another chapter on "Errors and Safeguards in Electro-Surgical Operations" and an excellent section by Dr. Hubert Smith on "Medico-Legal Aspects of Surgical Practice." Numerous illustrations have been replaced.

That errors or defeats are more instructive than achievements is generally held to be true. An honest declaration of error is the first step toward its correction. The author states that the purpose of this book is the keen desire, because of his own mistakes and the dangers which he himself has met, to impress their possibility on others so that they may benefit from his failures and disappointments.

There is no other American work on this subject. There are scattered descriptions of possible accidents and mishaps in different surgical procedures, and our surgical textbooks tell us what to do and how to do it, but it is seldom that they tell us what not to do, how to avoid complications and technical errors or how to act when face to face with some of the abnormal circumstances which constantly present themselves during the course of a surgical operation.

This book should be read by every surgeon.

Personal and Community Health. *By Clair E. Turner, A.M., Sc.D., Dr. P.H., Professor of Public Health in the Massachusetts Institute of Technology; formerly Associate Professor of Hygiene in the Tufts Medical and Dental Schools. Seventh edition. Cloth. Price, $3.50. Pp. 585. St. Louis: The C. V. Mosby Company, 1943.*

This book presents the essential, present-day knowledge of personal and community health, with enough anatomy, physiology and other underlying sciences to clarify and support health teaching. The present edition reflects the continued teaching experience of the author.

The first part on personal health discusses: Hygiene and health; nutrition; digestion; oral hygiene; respiration; circulation; the kidneys; the skin; endocrines; the sense organs; hygiene of the nervous system; mental hygiene; hygiene of body activity; body mechanics; foot hygiene; hygiene of reproduction; heredity and health; narcotics and stimulation and adult hygiene.

The second part is devoted to community hygiene including disease prevention; facts of immunity; the three great plagues; food control; water supply; waste disposal; ventilation; heating and lighting; public health administration; maternal and child hygiene; school hygiene; industrial hygiene; the control of communicable diseases and disinfection and disinfectants. This is a valuable textbook on this subject for the various college-level groups.

After-Care and Rehabilitation. *By Various Authors. With an Introduction by Professor F. R. Fraser, M.A., M.D., F.R.C.P. Edited by Sir Humphry Rolleston, Bt., G.C.V.O., M.D., and Alan Moncrieff, M.D., F.R.C.P. Cloth. Price, 8s6d. Pp. 128, with 5 illustrations. London: The Practitioner in Conjunction with Eyre and Spottiswoode, 1943.*

This is one of the nine practical "The Practitioner" booklets. It is no longer sufficient for the practitioner to steer the patient through the acute phases of his malady. Convalescence must be planned and ordered and it must not be unduly protracted.

This booklet gives the theoretical knowledge upon which skilled supervision of after-care and rehabilitation can be effectively based. Rehabilitation must begin at the earliest possible stage and so this booklet includes details of the management of postoperative conditions and acute medical disorders. This booklet should be in the library of physicians and technicians interested in rehabilitation.

And They Shall Walk. *By Elizabeth Kenny, in collaboration with Martha Ostenso. Cloth. Pp. 281. Price, $3. New York: Dodd, Mead and Company, 1943.*

Everyone has heard of the Kenny treatment for infantile paralysis. This book relates the life and struggles of Sister Kenny to start this treatment. It is an interesting and absorbing tale.

The story begins with the colorful picture of her early days in the fabulous "land down under"—Australia. Here she relates many interesting and colorful stories. None is more interesting than the manner she kept her clothing dry when as a nurse she was going to see a patient. "For, to keep my clothing dry, I immediately got down from my horse, disrobed, made a bundle of my clothes which I placed on a stump; then, unsaddling my horse, I set the saddle atop the bundle and over that threw a waterproof blanket I carried with me. I, myself, garbed like Eve—who never was faced, I am sure, with the problem of finding a dry outfit when the one she possessed became drenched!—sat topping everything on the stump enjoying a wonderful shower bath, while my horse turned his back to the storm. I recommend this mode of ablution to anyone who is not bashful in the presence of gum trees, birds and the inquisitive koala bear."

At the outbreak of World War I this Australian nurse took her place with her country's forces, and in France she was wounded in her left leg with shrapnel. She was a nurse on the first "dark ship to leave England with casualties returning to Australia." A dark ship was a merchant vessel carrying besides the wounded, munitions of war and so was open game for the enemy.

Most of the book is the author's account of her development of a method of treatment of infantile paralysis. This, of course, is physical therapy. How well she succeeded is seen from the honor that physicians devoting their lives to physical therapy gave her. In September 1942 Sister Kenny received from the American Congress of Physical Therapy the award of the Distinguished Service Gold Key. It was the first time in the history of the organization that a woman had been recipient of the honor. This book is interesting and can be recommended to every physical therapist.

Chapter Directory

California Chapter

President, Mrs. Margery L. Wagner, Univ. of California Hospital, San Francisco, Calif.
Secretary, Marjorie M. Dennen, 416 Hawthorne Ave., Oakland, Calif.
District Chairmen:
Southern California: Virginia Ellett, 2107¼ Wilmot St., Los Angeles 7, Calif.
Northern District: Marion Williams, 521 Cornell St., Palo Alto, Calif.
Santa Barbara: Virginia Horsley, 1734 State St., Santa Barbara, Calif.

Carolina Chapter

President, Mary C. Singleton, Duke Hospital, Durham, N. C.
Secretary, Lt. Margaret Whitehurst, Station Hospital No. 2, Fort Bragg, N. C.

Central New York Chapter

President, (acting), John Lindell, 11 Shaw St., Utica, N. Y.
Secretary, Mrs. M. Stell Murphy, 219 Genesee St., Utica, N. Y.

Colorado Chapter

President, Gosta Valdemar, Children's Hospital, Denver, Colo.
Secretary, Mrs. Alice Swanson, 1254 St. Paul, Denver, Colo.

Connecticut Chapter

President, John O'Donnell, Yale University, Dept. of Health, New Haven, Conn.
Secretary, Mildred V. Grillo, 29 French Town Road, Bridgeport, Conn.

District of Columbia Chapter

President, Mia H. Donner, 1801 Eye St., N. W., Washington, D. C.
Secretary, Laura W. Field, 417—18th St., N. E., Washington 2, D. C.

Eastern New York Chapter

President, Mrs. Grace B. Reinhart, 124 Rosa Road, Schenectady, N. Y.
Secretary, Susanna P. Deal, 18 Hawthorne Ave., Troy, N. Y.

Georgia Chapter

President, Florence Schenck, 753 Penn Ave., N. E., Atlanta, Ga
Secretary, Alice Lou Plastridge, Warm Springs Found., Warm Springs, Ga.

Illinois Chapter

President, Dorothy Dean, P. T. Dept., 303 E. Chicago Ave., Chicago 11, Ill.
Secretary, Irene Anderson, P. T. Dept., Wesley Memorial Hospital, Chicago 11, Ill.

Indiana Chapter

President, Carrol Moyer, Riley Hospital, Indianapolis, Ind.
Secretary, Hazel Johnson, 402 N. Drexel St., Indianapolis, Ind.

Iowa Chapter

President, Katherine Sutherland, 118½ S. Dubuque, Iowa City, Iowa.
Secretary, Lucia Forestiere, Children's Hospital, Iowa City, Iowa.

Louisiana Chapter

President, Ruth Langley, 1210 Peniston St., New Orleans, La.
Secretary, Lt. Eleanor Marshall, Station Hospital, N.O.P.E., New Orleans, La.

Maine Chapter

President, Imelda Thibault, Central Maine General Hospital, Lewiston, Me.
Secretary, Lillian Shotter, Vet. Adm. Fac., Togus, Me.

Maryland Chapter

President, Mr. Henry O. Kendall, 3 Englewood Road, Baltimore, Md.
Secretary, Evelyn M. Byrd, University Hospital, Baltimore, Md.

Massachusetts Physiotherapy Association, Inc.

President, Mildred L. Evans, 234 Marlborough St., Boston, Mass.
Secretary, Evelyn F. Moore, 234 Marlborough St., Boston, Mass.

Michigan Chapter

President, Marcia Shaw, 20425 Gardendale Ave., Detroit, Mich.
Secretary, Edna S. Dinieus, 1337 David Whitney Bldg., Detroit, Mich.

Minnesota Chapter

President, Mrs. Corabelle J. Brown, 1943 Med. Arts Bldg., Minneapolis, Minn.
Secretary, E. Othelia Johnson, 1736 Lincoln Ave., St. Paul, Minn.

Missouri Chapter

President, Dorothy H. Hansman, 4327 Neosho, St. Louis 16, Mo.
Secretary, Mr. Carroll J. McAllister, 9032 Rosemary Ave., St. Louis, Mo.

New Jersey Chapter

President, Mrs. Frances Gill, Beth Israel Hospital, Newark, N. J.
Secretary, Mrs. Alice Pelusio, 269 Carroll St., Paterson, N. J.

New York Chapter, Inc.

President, A. Garman Dingwall, 191 Claremont Ave., New York, N. Y.
Secretary, Caroline B. Dunne, 364 Elm Ave., Bogota, N. J.

Ohio Chapter

President, Ruth Pratt, 335 Rockdale, Cincinnati, Ohio.
Secretary, Mrs. Emilie Campbell, 5259 Elland Ave., Cincinnati, Ohio.

District Chairmen:

Northern District: Adelaide Fowler, Y.W.C.A., Cleveland, Ohio.
Southern District: Mrs. Frances S. Turner, 3111 Johnstown Rd., Columbia, Ohio.

Oregon Chapter

President, Mrs. Jean L. Collings, 4010 N. E. 29th Ave., Portland 12, Ore.
Secretary, Mrs. Anna M. Elliott, 3560 N. E. Knott St., Portland 13, Ore.

Pennsylvania Physiotherapy Association, Inc.

President, Nevin R. Kressley, 111 North 49th St., Philadelphia, Pa.
Secretary, M. Elizabeth Holtzhausser, 160 West Girard Ave., Philadelphia, Pa.

Rhode Island Chapter

President, Arleen Ward, 21 Lillian Ave., Providence, R. I.
Secretary, Isabelle O'Hern, 81 Sumter St., Providence, R. I.

Tennessee Chapter

President, Mildred Heap, Hilltop Apts., 1606—18th Ave., Nashville 3, Tenn.
Secretary, Cecile Culbertson, Knox Co. Crippled Children's Hospital, Knoxville, Tenn.

Territory of Hawaii Chapter

President, Mrs. Barbara N. Campbell, 2621 East Manoa Rd., Honolulu, T. H.
Secretary, Ruth Aust, 2517 Ala Wai, Apt. 1, Honolulu, T. H.

Texas Chapter

President, Mrs. Kathryn B. Spencer, John Sealy Hospital, Galveston, Texas.
Secretary, Verna Mae Schuster, Memorial Hospital, Houston, Texas.

Washington Chapter

President, Ruth C. Babb, 315 K Street, Tacoma, Wash.
Secretary, Loretta L. Botto, 3420 N. 26th St., Tacoma, Wash.

Western Michigan Chapter

President, Elizabeth Murphy, Ann J. Kellogg School, Battle Creek, Mich.
Secretary, Dorothy E. McManus, 209 Charles Ave., S. E., Grand Rapids, Mich.

Western New York Chapter

President, Mrs. Eloise Landis, 345 Bedford Ave., Buffalo, N. Y.
Secretary, Catherine Baldwin, 422 Marilla St., Buffalo, N. Y.

Wisconsin Chapter

President. Leila Aanrud, 1524 S. 80th St., West Allis, Wisc.
Secretary, Lelia Hoaglin, 916 New York Ave., Sheboygan, Wisc.